



PRODUCT-DETAILS

**AF16ZB-30-01-23**  
**AF16ZB-30-01-23 100-250V50/60HZ-DC**  
**Contactor**



| General Information   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extended Product Type | AF16ZB-30-01-23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Product ID            | 1SBL176061R2301                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| EAN                   | 3471523124035                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Catalog Description   | AF16ZB-30-01-23 100-250V50/60HZ-DC Contactor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Long Description      | The AF16ZB-30-01-23 is a 3 pole - 690 V IEC or 600 UL contactor with 1 built-in auxiliary contact and screw terminals, controlling motors up to 7.5 kW / 400 V AC (AC-3) or 10 hp / 480 V UL and switching power circuits up to 30 A (AC-1) or 30 A UL general use. Thanks to the AF technology, the contactor has a wide control voltage range (100-250 V 50/60 Hz and 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               |          |
|------------------------|----------|
| Minimum Order Quantity | 1 piece  |
| Customs Tariff Number  | 85364900 |

| Popular Downloads                 |                 |
|-----------------------------------|-----------------|
| Data Sheet, Technical Information | 1SBC100220C0201 |
| Instructions and Manuals          | 1SBC101027M6801 |
| CAD Dimensional Drawing           | 2CDC001079B0201 |

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

| Technical                                                |                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of Main Contacts NO                               | 3                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of Main Contacts NC                               | 0                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of Auxiliary Contacts NO                          | 0                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of Auxiliary Contacts NC                          | 1                                                                                                                                                                                                                                                                                                                                                                                                       |
| Number of Poles                                          | 3P                                                                                                                                                                                                                                                                                                                                                                                                      |
| Standards                                                | IEC/EN 60947-1, IEC/EN 60947-4-1, UL 60335-2-40 LZGH2 A2L, UL 60947-4-1, CSA C22.2 No. 60335-2-40 LZGH2 A2L, 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 <sub>th</sub> ) | acc. to IEC 60947-4-1, Open Contactors $\Theta = 40\text{ }^{\circ}\text{C}$ 35 A<br>acc. to IEC 60947-5-1, $\Theta = 40\text{ }^{\circ}\text{C}$ 16 A                                                                                                                                                                                                                                                  |
| Rated Operational Current AC-1 (I <sub>e</sub> )         | (690 V) 40 °C 30 A<br>(690 V) 60 °C 30 A<br>(690 V) 70 °C 26 A                                                                                                                                                                                                                                                                                                                                          |
| Rated Operational Current AC-3 (I <sub>e</sub> )         | (415 V) 60 °C 18 A<br>(440 V) 60 °C 18 A<br>(500 V) 60 °C 15 A<br>(690 V) 60 °C 10.5 A<br>(380 / 400 V) 60 °C 18 A<br>(220 / 230 / 240 V) 60 °C 18 A                                                                                                                                                                                                                                                    |
| Rated Operational Current AC-3e (I <sub>e</sub> )        | (415 V) 60 °C 18 A<br>(440 V) 60 °C 18 A<br>(500 V) 60 °C 15 A<br>(690 V) 60 °C 10.5 A<br>(380 / 400 V) 60 °C 18 A<br>(220 / 230 / 240 V) 60 °C 18 A                                                                                                                                                                                                                                                    |
| Rated Operational Current AC-15 (I <sub>e</sub> )        | (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 Operational  
Current DC-1 (I<sub>e</sub>)

- (110 V) 1-Pole, 40 °C 20 A
- (110 V) 1-Pole, 60 °C 20 A
- (110 V) 1-Pole, 70 °C 20 A
- (110 V) 2 Poles in Series, 40 °C 30 A
- (110 V) 2 Poles in Series, 60 °C 30 A
- (110 V) 2 Poles in Series, 70 °C 26 A
- (110 V) 3 Poles in Series, 40 °C 30 A
- (110 V) 3 Poles in Series, 60 °C 30 A
- (110 V) 3 Poles in Series, 70 °C 26 A
- (220 V) 2 Poles in Series, 40 °C 20 A
- (220 V) 2 Poles in Series, 60 °C 20 A
- (220 V) 2 Poles in Series, 70 °C 20 A
- (220 V) 3 Poles in Series, 40 °C 30 A
- (220 V) 3 Poles in Series, 60 °C 30 A
- (220 V) 3 Poles in Series, 70 °C 26 A
- (72 V) 1-Pole, 40 °C 30 A
- (72 V) 1-Pole, 60 °C 30 A
- (72 V) 1-Pole, 70 °C 26 A
- (72 V) 2 Poles in Series, 40 °C 30 A
- (72 V) 2 Poles in Series, 60 °C 30 A
- (72 V) 2 Poles in Series, 70 °C 26 A
- (72 V) 3 Poles in Series, 40 °C 30 A
- (72 V) 3 Poles in Series, 60 °C 30 A
- (72 V) 3 Poles in Series, 70 °C 26 A

Rated Operational  
Current DC-3 (I<sub>e</sub>)

- (110 V) 1-Pole, 40 °C 8 A
- (110 V) 1-Pole, 60 °C 8 A
- (110 V) 1-Pole, 70 °C 8 A
- (110 V) 2 Poles in Series, 40 °C 30 A
- (110 V) 2 Poles in Series, 60 °C 30 A
- (110 V) 2 Poles in Series, 70 °C 26 A
- (110 V) 3 Poles in Series, 40 °C 30 A
- (110 V) 3 Poles in Series, 60 °C 30 A
- (110 V) 3 Poles in Series, 70 °C 26 A
- (220 V) 2 Poles in Series, 40 °C 8 A
- (220 V) 2 Poles in Series, 60 °C 8 A
- (220 V) 2 Poles in Series, 70 °C 8 A
- (220 V) 3 Poles in Series, 40 °C 30 A
- (220 V) 3 Poles in Series, 60 °C 30 A
- (220 V) 3 Poles in Series, 70 °C 26 A
- (72 V) 1-Pole, 40 °C 30 A
- (72 V) 1-Pole, 60 °C 30 A
- (72 V) 1-Pole, 70 °C 26 A
- (72 V) 2 Poles in Series, 40 °C 30 A
- (72 V) 2 Poles in Series, 60 °C 30 A
- (72 V) 2 Poles in Series, 70 °C 26 A
- (72 V) 3 Poles in Series, 40 °C 30 A
- (72 V) 3 Poles in Series, 60 °C 30 A
- (72 V) 3 Poles in Series, 70 °C 26 A

Rated Operational  
Current DC-5 (I<sub>e</sub>)

- (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 20 A
- (110 V) 2 Poles in Series, 60 °C 20 A
- (110 V) 2 Poles in Series, 70 °C 20 A
- (110 V) 3 Poles in Series, 40 °C 30 A
- (110 V) 3 Poles in Series, 60 °C 30 A
- (110 V) 3 Poles in Series, 70 °C 26 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 16 A
- (220 V) 3 Poles in Series, 60 °C 16 A
- (220 V) 3 Poles in Series, 70 °C 16 A
- (72 V) 1-Pole, 40 °C 16 A
- (72 V) 1-Pole, 60 °C 16 A
- (72 V) 1-Pole, 70 °C 16 A
- (72 V) 2 Poles in Series, 40 °C 30 A
- (72 V) 2 Poles in Series, 60 °C 30 A
- (72 V) 2 Poles in Series, 70 °C 26 A
- (72 V) 3 Poles in Series, 40 °C 30 A
- (72 V) 3 Poles in Series, 60 °C 30 A

|                                                             |                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                             | (72 V) 3 Poles in Series, 70 °C 26 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 Operational Power AC-3 ( $P_e$ )                      | (415 V) 9 kW<br>(440 V) 9 kW<br>(500 V) 9 kW<br>(690 V) 9 kW<br>(380 / 400 V) 7.5 kW<br>(220 / 230 / 240 V) 4 kW                                                                                                                                                                                                                                                                    |
| Rated Operational Power AC-3e ( $P_e$ )                     | (415 V) 9 kW<br>(440 V) 9 kW<br>(500 V) 9 kW<br>(690 V) 9 kW<br>(380 / 400 V) 7.5 kW<br>(220 / 230 / 240 V) 4 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<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 $I_e > 100$ A) at 440 V 250 A<br>cos phi=0.45 (cos phi=0.35 for $I_e > 100$ A) at 690 V 106 A                                                                                                                                                                                                                                                        |
| 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 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                                                                                                                                                                                                                       |
| Maximum Mechanical Switching Frequency                      | 3600 cycles per hour                                                                                                                                                                                                                                                                                                                                                                |
| Rated Control Circuit Voltage ( $U_c$ )                     | 50 Hz 100 ... 250 V<br>60 Hz 100 ... 250 V<br>DC Operation 100 ... 250 V                                                                                                                                                                                                                                                                                                            |
| Power Loss                                                  | at 6 A per Pole 0.1 W<br>at Rated Operating Conditions AC-1 per Pole 1.2 W<br>at Rated Operating Conditions AC-3 per Pole 0.35 W                                                                                                                                                                                                                                                    |
| 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 mm <sup>2</sup><br>Flexible with Insulated Ferrule 1x 0.75 ... 4 mm <sup>2</sup><br>Flexible with Insulated Ferrule 2x 0.75 ... 2.5 mm <sup>2</sup><br>Rigid Solid 1/2x 1 ... 4 mm <sup>2</sup><br>Rigid Stranded 1/2x 1 ... 6 mm <sup>2</sup>                                                                                                |
| Connecting Capacity Auxiliary Circuit                       | Rigid Solid 1/2x 1 ... 2.5 mm <sup>2</sup><br>Rigid Stranded 1/2x 1 ... 2.5 mm <sup>2</sup>                                                                                                                                                                                                                                                                                         |

|                                        |                                                                                                                                                                                                                                                                                              |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connecting Capacity<br>Control Circuit | Flexible with Ferrule 1/2x 0.75 ... 2.5 mm <sup>2</sup><br>Flexible with Insulated Ferrule 1x 0.75 ... 2.5 mm <sup>2</sup><br>Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm <sup>2</sup><br>Rigid Solid 1/2x 1 ... 2.5 mm <sup>2</sup><br>Rigid Stranded 1/2x 1 ... 2.5 mm <sup>2</sup> |
| Wire Stripping Length                  | Auxiliary Circuit 10 mm<br>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                                                                                            |
| Tightening Torque                      | Auxiliary Circuit 1.2 N·m<br>Control Circuit 1.2 N·m<br>Main Circuit 1.5 N·m                                                                                                                                                                                                                 |
| Terminal Type                          | Screw Terminals                                                                                                                                                                                                                                                                              |
| Product Name                           | Block Contactor                                                                                                                                                                                                                                                                              |

Technical UL/CSA

|                                                 |                                                                                                                                                                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Operating<br>Voltage UL/CSA             | Main Circuit 600 V                                                                                                                                                                                                             |
| General Use Rating<br>UL/CSA                    | (600 V AC) 30 A                                                                                                                                                                                                                |
| Horsepower Rating<br>UL/CSA                     | (120 V AC) Single Phase 1-1/2 hp<br>(200 ... 208 V AC) Three Phase 5 hp<br>(220 ... 240 V AC) Three Phase 5 hp<br>(240 V AC) Single Phase 3 hp<br>(440 ... 480 V AC) Three Phase 10 hp<br>(550 ... 600 V AC) Three Phase 15 hp |
| Connecting Capacity<br>Main Circuit UL/CSA      | Rigid Solid 1/2x 16-10 AWG<br>Rigid Stranded 1/2x 16-10 AWG                                                                                                                                                                    |
| Connecting Capacity<br>Auxiliary Circuit UL/CSA | Rigid Solid 1/2x 18-14 AWG<br>Rigid Stranded 1/2x 18-14 AWG                                                                                                                                                                    |
| Connecting Capacity<br>Control Circuit UL/CSA   | Rigid Solid 1/2x 18-14 AWG<br>Rigid Stranded 1/2x 18-14 AWG                                                                                                                                                                    |
| Tightening Torque<br>UL/CSA                     | Auxiliary Circuit 11 in·lb<br>Control Circuit 11 in·lb<br>Main Circuit 13 in·lb                                                                                                                                                |
| Full Load Amps Motor<br>Use                     | (120 V AC) Single Phase 20 A<br>(200 ... 208 V AC) Three Phase 17.5 A<br>(220 ... 240 V AC) Three Phase 15.2 A<br>(240 V AC) Single Phase 17 A<br>(440 ... 480 V AC) Three Phase 14 A<br>(550 ... 600 V AC) Three Phase 17 A   |

Environmental

|                                                       |                                                                                                                                                                               |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient Air<br>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<br>Altitude Permissible             | Without Derating 3000 m                                                                                                                                                       |
| Shock and Vibration<br>Withstand acc. to IEC<br>61373 | Category 1, Class B                                                                                                                                                           |
| Pollution Degree                                      | 3                                                                                                                                                                             |

Material Compliance

|                                             |                                                                        |
|---------------------------------------------|------------------------------------------------------------------------|
| 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

|                                         |                                    |
|-----------------------------------------|------------------------------------|
| Environmental Product Declaration - EPD | 1SBD250584E3000<br>2TFP200035A1001 |
|-----------------------------------------|------------------------------------|

Certificates and Declarations

|                                  |                                    |
|----------------------------------|------------------------------------|
| A2L Certificate – UL             | 9AKK108469A4875;9AKK108469A4879    |
| 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

|                                |               |
|--------------------------------|---------------|
| 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            | 3471523124035 |
| 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

|                                    |                                          |
|------------------------------------|------------------------------------------|
| 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 >> lec Contactors                   |

Categories

Low Voltage Products and Systems → Control Products → Contactors → Block Contactors → AF Contactors → AF16

