



PRODUCT-DETAILS

AF16Z-30-10-30

AF16Z-30-10-30 24VDC Contactor



| General Information   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Extended Product Type | AF16Z-30-10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Product ID            | 1SBL176001R3010                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| EAN                   | 3471523113893                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Catalog Description   | AF16Z-30-10-30 24VDC Contactor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Long Description      | The AF16Z-30-10-30 is a 3-pole - 690 V IEC or 600 UL contactor with one 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 24 V DC coil, featuring a reduced holding coil consumption down to 1.7 W and offering the possibility of a direct control by PLC-output $\geq 250$ mA 24 V DC, without need of additional interface relay, 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 |

| Popular Downloads                 |                 |
|-----------------------------------|-----------------|
| Data Sheet, Technical Information | 1SBC100214C0202 |
| Instructions and Manuals          | 1SBC101053M6801 |
| CAD Dimensional Drawing           | 2CDC001079B0201 |

| Dimensions                 |         |
|----------------------------|---------|
| Product Net Width          | 45 mm   |
| Product Net Depth / Length | 97 mm   |
| Product Net Height         | 86 mm   |
| Product Net Weight         | 0.43 kg |

| Technical                                                |                                                                                                                                                        |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                |
| Rated Operational Voltage                                | Auxiliary Circuit 690 V<br>Main Circuit 690 V                                                                                                          |
| Rated Frequency (f)                                      | Auxiliary 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 28 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 Power AC-3 (P <sub>e</sub> )           | (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 <sub>e</sub> )          | (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 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 $I_e > 100$ 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 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 20 A<br>(110 V) 1-Pole, 60 °C 20 A<br>(110 V) 1-Pole, 70 °C 20 A<br>(110 V) 2 Poles in Series, 40 °C 30 A<br>(110 V) 2 Poles in Series, 60 °C 30 A<br>(110 V) 2 Poles in Series, 70 °C 26 A<br>(110 V) 3 Poles in Series, 40 °C 30 A<br>(110 V) 3 Poles in Series, 60 °C 30 A<br>(110 V) 3 Poles in Series, 70 °C 26 A<br>(220 V) 2 Poles in Series, 40 °C 20 A<br>(220 V) 2 Poles in Series, 60 °C 20 A<br>(220 V) 2 Poles in Series, 70 °C 20 A<br>(220 V) 3 Poles in Series, 40 °C 30 A<br>(220 V) 3 Poles in Series, 60 °C 30 A<br>(220 V) 3 Poles in Series, 70 °C 26 A<br>(72 V) 1-Pole, 40 °C 30 A<br>(72 V) 1-Pole, 60 °C 30 A<br>(72 V) 1-Pole, 70 °C 26 A<br>(72 V) 2 Poles in Series, 40 °C 30 A<br>(72 V) 2 Poles in Series, 60 °C 30 A<br>(72 V) 2 Poles in Series, 70 °C 26 A<br>(72 V) 3 Poles in Series, 40 °C 30 A<br>(72 V) 3 Poles in Series, 60 °C 30 A<br>(72 V) 3 Poles in Series, 70 °C 26 A |
| Rated Operational Current DC-3 ( $I_e$ )                    | (110 V) 1-Pole, 40 °C 8 A<br>(110 V) 1-Pole, 60 °C 8 A<br>(110 V) 1-Pole, 70 °C 8 A<br>(110 V) 2 Poles in Series, 40 °C 30 A<br>(110 V) 2 Poles in Series, 60 °C 30 A<br>(110 V) 2 Poles in Series, 70 °C 26 A<br>(110 V) 3 Poles in Series, 40 °C 30 A<br>(110 V) 3 Poles in Series, 60 °C 30 A<br>(110 V) 3 Poles in Series, 70 °C 26 A<br>(220 V) 2 Poles in Series, 40 °C 8 A<br>(220 V) 2 Poles in Series, 60 °C 8 A<br>(220 V) 2 Poles in Series, 70 °C 8 A<br>(220 V) 3 Poles in Series, 40 °C 30 A<br>(220 V) 3 Poles in Series, 60 °C 30 A<br>(220 V) 3 Poles in Series, 70 °C 26 A<br>(72 V) 1-Pole, 40 °C 30 A<br>(72 V) 1-Pole, 60 °C 30 A<br>(72 V) 1-Pole, 70 °C 26 A<br>(72 V) 2 Poles in Series, 40 °C 30 A<br>(72 V) 2 Poles in Series, 60 °C 30 A<br>(72 V) 2 Poles in Series, 70 °C 26 A<br>(72 V) 3 Poles in Series, 40 °C 30 A<br>(72 V) 3 Poles in Series, 60 °C 30 A<br>(72 V) 3 Poles in Series, 70 °C 26 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

|                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                               | (110 V) 1-Pole, 70 °C 4 A<br>(110 V) 2 Poles in Series, 40 °C 20 A<br>(110 V) 2 Poles in Series, 60 °C 20 A<br>(110 V) 2 Poles in Series, 70 °C 20 A<br>(110 V) 3 Poles in Series, 40 °C 30 A<br>(110 V) 3 Poles in Series, 60 °C 30 A<br>(110 V) 3 Poles in Series, 70 °C 26 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 16 A<br>(220 V) 3 Poles in Series, 60 °C 16 A<br>(220 V) 3 Poles in Series, 70 °C 16 A<br>(72 V) 1-Pole, 40 °C 16 A<br>(72 V) 1-Pole, 60 °C 16 A<br>(72 V) 1-Pole, 70 °C 16 A<br>(72 V) 2 Poles in Series, 40 °C 30 A<br>(72 V) 2 Poles in Series, 60 °C 30 A<br>(72 V) 2 Poles in Series, 70 °C 26 A<br>(72 V) 3 Poles in Series, 40 °C 30 A<br>(72 V) 3 Poles in Series, 60 °C 30 A<br>(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 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 ( $U_c$ )       | DC Operation 24 V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Operate Time                                  | Between Coil De-energization and NC Contact Closing 22 ... 57 ms<br>Between Coil De-energization and NO Contact Opening 17 ... 29 ms<br>Between Coil Energization and NC Contact Opening 20 ... 35 ms<br>Between Coil Energization and NO Contact Closing 27 ... 53 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         | Flexible with Ferrule 1/2x 0.75 ... 2.5 mm <sup>2</sup><br>Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm <sup>2</sup><br>Flexible with Insulated Ferrule 1x 0.75 ... 2.5 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Connecting Capacity 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 |
| Terminal Type        | Screw Terminals                                                                                                                                                                                   |

Technical UL/CSA

|                                              |                                                                                                                                                                                                                                |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Maximum Operating Voltage UL/CSA             | Main Circuit 600 V                                                                                                                                                                                                             |
| General Use Rating UL/CSA                    | (600 V AC) 30 A                                                                                                                                                                                                                |
| Horsepower Rating 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 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

|                                        |                                                                                                                                                                               |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                       |
| Resistance to Vibrations               | 4g Closed Position & 2g Open position 5 ... 300 Hz                                                                                                                            |

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           |
| Sustainable Material Content              | Recycled Metal - 28 %     |
| Sustainable Material Content in Packaging | Recycled Cardboard - 86 % |

| Certificates and Declarations       |                                            |
|-------------------------------------|--------------------------------------------|
| ABS Certificate                     | ABS_20-2060694-PDA                         |
| CB Certificate                      | CB_SE-113345                               |
| CCC Certificate                     | CCC_2010010304445624                       |
| CQC Certificate                     | CQC2010010304445624<br>CQC2020010304298240 |
| Declaration of<br>Conformity - CCC  | 2020980304001253<br>2020980304001082       |
| Declaration of<br>Conformity - CE   | 1SBD250000U1000                            |
| Declaration of<br>Conformity - UKCA | 1SBD250031U1000                            |
| DNV Certificate                     | DNV_TAE00001AF-4                           |
| RINA Certificate                    | RINA_ELE142224XG                           |
| RMRS Certificate                    | RMRS_1802705280                            |
| UL Certificate                      | UL-US-2150887-5<br>UL-CA-2142658-5         |

| Container Information             |                |
|-----------------------------------|----------------|
| Package Level 1 Units             | box 1 piece    |
| Package Level 1 Width             | 96 mm          |
| Package Level 1 Depth /<br>Length | 112 mm         |
| Package Level 1 Height            | 50 mm          |
| Package Level 1 Gross<br>Weight   | 0.475 kg       |
| Package Level 1 EAN               | 3471523113893  |
| Package Level 2 Units             | crate 12 piece |
| Package Level 2 Width             | 51 mm          |
| Package Level 2 Depth /<br>Length | 98 mm          |
| Package Level 2 Height            | 114 mm         |
| Package Level 2 Gross<br>Weight   | 5.7 kg         |
| Package Level 3 Units             | 576 piece      |

| Classifications                       |                                          |
|---------------------------------------|------------------------------------------|
| Object Classification<br>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<br>Code (IGCC) | 4758 >> Iec Contactors                   |
| E-Number (Finland)                    | 3709058                                  |

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## Categories

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

