



PRODUCT-DETAILS

AF16Z-30-10K-21

AF16Z-30-10K-21 24-60V50/60HZ 20-60VDC

Contactors



General Information

Extended Product Type	AF16Z-30-10K-21
Product ID	1SBL176005R2110
EAN	3471523156111
Catalog Description	AF16Z-30-10K-21 24-60V50/60HZ 20-60VDC Contactor

Long Description	The AF16Z-30-10K-21 is a 3 pole - 690 V IEC or 600 UL contactor with 1 built-in auxiliary contact and Push-in spring 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 (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.
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Ordering

Minimum Order Quantity	1 piece
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Popular Downloads

Data Sheet, Technical Information	1SBC100214C0202
Instructions and Manuals	1SBC101054M6801
CAD Dimensional Drawing	2CDC001079B0201

Dimensions

Product Net Width	45 mm
Product Net Depth / Length	77 mm
Product Net Height	92.3 mm
Product Net Weight	0.315 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
Number of Poles	3P
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 Main Circuit 690 V
Rated Frequency (f)	Auxiliary Circuit 50 / 60 Hz 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 acc. to IEC 60947-5-1, $\Theta = 40\text{ }^{\circ}\text{C}$ 16 A
Rated Operational Current AC-1 (I_e)	(690 V) 40 $^{\circ}\text{C}$ 30 A (690 V) 60 $^{\circ}\text{C}$ 30 A (690 V) 70 $^{\circ}\text{C}$ 26 A
Rated Operational Current AC-3 (I_e)	(415 V) 60 $^{\circ}\text{C}$ 18 A (440 V) 60 $^{\circ}\text{C}$ 18 A (500 V) 60 $^{\circ}\text{C}$ 15 A (690 V) 60 $^{\circ}\text{C}$ 10.5 A (380 / 400 V) 60 $^{\circ}\text{C}$ 18 A (220 / 230 / 240 V) 60 $^{\circ}\text{C}$ 18 A
Rated Operational Current AC-3e (I_e)	(415 V) 60 $^{\circ}\text{C}$ 18 A (440 V) 60 $^{\circ}\text{C}$ 18 A (500 V) 60 $^{\circ}\text{C}$ 15 A (690 V) 60 $^{\circ}\text{C}$ 10.5 A (380 / 400 V) 60 $^{\circ}\text{C}$ 18 A (220 / 230 / 240 V) 60 $^{\circ}\text{C}$ 18 A
Rated Operational Current AC-15 (I_e)	(500 V) 2 A (690 V) 2 A (24 / 127 V) 6 A (220 / 240 V) 4 A (400 / 440 V) 3 A
Rated Operational Current DC-1 (I_e)	(110 V) 1-Pole, 40 $^{\circ}\text{C}$ 20 A (110 V) 1-Pole, 60 $^{\circ}\text{C}$ 20 A (110 V) 1-Pole, 70 $^{\circ}\text{C}$ 20 A (110 V) 2 Poles in Series, 40 $^{\circ}\text{C}$ 30 A (110 V) 2 Poles in Series, 60 $^{\circ}\text{C}$ 30 A (110 V) 2 Poles in Series, 70 $^{\circ}\text{C}$ 26 A (110 V) 3 Poles in Series, 40 $^{\circ}\text{C}$ 30 A (110 V) 3 Poles in Series, 60 $^{\circ}\text{C}$ 30 A (110 V) 3 Poles in Series, 70 $^{\circ}\text{C}$ 26 A (220 V) 2 Poles in Series, 40 $^{\circ}\text{C}$ 20 A (220 V) 2 Poles in Series, 60 $^{\circ}\text{C}$ 20 A (220 V) 2 Poles in Series, 70 $^{\circ}\text{C}$ 20 A (220 V) 3 Poles in Series, 40 $^{\circ}\text{C}$ 30 A (220 V) 3 Poles in Series, 60 $^{\circ}\text{C}$ 30 A (220 V) 3 Poles in Series, 70 $^{\circ}\text{C}$ 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	(110 V) 1-Pole, 40 °C 8 A
DC-3 (I _e)	(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	(110 V) 1-Pole, 40 °C 4 A
DC-5 (I _e)	(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	(24 V) 6 A / 144 W
DC-13 (I _e)	(48 V) 2.8 A / 134 W
	(72 V) 1 A / 72 W
	(110 V) 0.55 A / 60 W
	(125 V) 0.55 A / 69 W
	(220 V) 0.27 A / 60 W
	(250 V) 0.27 A / 68 W
	(400 V) 0.15 A / 60 W
	(500 V) 0.13 A / 65 W
	(600 V) 0.1 A / 60 W
Rated Operational Power	(415 V) 9 kW
AC-3 (P _e)	(440 V) 9 kW
	(500 V) 9 kW
	(690 V) 9 kW
	(380 / 400 V) 7.5 kW
	(220 / 230 / 240 V) 4 kW
Rated Operational Power	(415 V) 9 kW
AC-3e (P _e)	(440 V) 9 kW
	(500 V) 9 kW
	(690 V) 9 kW
	(380 / 400 V) 7.5 kW
	(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 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 for 0.1 s 140 A 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 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 acc. to IEC 60947-5-1 690 V acc. to UL/CSA 600 V
Rated Impulse Withstand Voltage (U_{imp})	6 kV
Maximum Electrical Switching Frequency	(AC-1) 600 cycles per hour (AC-15) 1200 cycles per hour (AC-2 / AC-4) 300 cycles per hour (AC-3) 1200 cycles per hour (DC-13) 900 cycles per hour
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
Power Loss	at 6 A per Pole 0.1 W at Rated Operating Conditions AC-1 per Pole 1.64 W at Rated Operating Conditions AC-3 per Pole 0.6 W
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 0.5 ... 4 mm ² Flexible with Insulated Ferrule 1x 0.5 ... 4 mm ² Flexible with Insulated Ferrule 2x 0.5 ... 2.5 mm ² Flexible 1/2x 0.5 ... 4 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ² Rigid Stranded 1/2x 4 ... 6 mm ²
Connecting Capacity Auxiliary Circuit	Flexible with Ferrule 1/2x 0.5 ... 2.5 mm ² Flexible with Insulated Ferrule 1/2x 0.5 ... 1.5 mm ² Flexible 1/2x 0.5 ... 2.5 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ²
Connecting Capacity Control Circuit	Flexible with Ferrule 1/2x 0.5 ... 2.5 mm ² Flexible with Insulated Ferrule 1/2x 0.5 ... 1.5 mm ² Flexible 1/2x 0.5 ... 2.5 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ²
Wire Stripping Length	Auxiliary Circuit 10 mm Control Circuit 10 mm Main Circuit 10 mm
Degree of Protection	acc. to IEC 60529, IEC 60947-1, EN 60529 Auxiliary Terminals IP20 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	Push-in Spring Terminals
Product Name	Block Contactor

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 (200 ... 208 V AC) Three Phase 5 hp (220 ... 240 V AC) Three Phase 5 hp (240 V AC) Single Phase 3 hp (440 ... 480 V AC) Three Phase 10 hp (550 ... 600 V AC) Three Phase 15 hp

Connecting Capacity Main Circuit UL/CSA	Rigid Solid 1/2x 18-14 AWG Rigid Stranded 1/2x 18-10 AWG
Connecting Capacity Auxiliary Circuit UL/CSA	Rigid Solid 1/2x 18-14 AWG
Connecting Capacity Control Circuit UL/CSA	Rigid Solid 1/2x 18-14 AWG
Full Load Amps Motor Use	(120 V AC) Single Phase 20 A (200 ... 208 V AC) Three Phase 17.5 A (220 ... 240 V AC) Three Phase 15.2 A (240 V AC) Single Phase 17 A (440 ... 480 V AC) Three Phase 14 A (550 ... 600 V AC) Three Phase 17 A

Environmental

Ambient Air Temperature	Close to Contactor without Thermal O/L Relay -40 ... 70 °C 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
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
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Certificates and Declarations

ABS Certificate	ABS_20-2060694-PDA
CB Certificate	CB_SE-113345
CCC Certificate	CCC_2010010304445624
CQC Certificate	CQC2010010304445624 CQC2020010304298240
Declaration of Conformity - CCC	2020980304001253 2020980304001082
Declaration of Conformity - CE	1SBD250000U1000
Declaration of Conformity - UKCA	1SBD250031U1000
DNV Certificate	DNV_TAE00001AF-4
LR Certificate	LRS_LR23403517TA-02
RINA Certificate	RINA_ELE142224XG
RMRS Certificate	RMRS_1802705280
UL Certificate	UL-US-2150887-5 UL-CA-2142658-5

Container Information

Package Level 1 Units	box 1 piece
Package Level 1 Width	93 mm
Package Level 1 Depth / Length	86 mm
Package Level 1 Height	45 mm
Package Level 1 Gross Weight	0.33 kg
Package Level 1 EAN	3471523156111
Package Level 2 Units	box 21 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	14.85 kg
Package Level 3 Units	1080 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
E-Number (Finland)	3707890
E-Number (Sweden)	3210612

Categories

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

