



 PRODUCT-DETAILS

AFS09-30-22-13

AFS09-30-22-13 100-250V50/60HZ-DC Contactor



General Information

Extended Product Type	AFS09-30-22-13
Product ID	1SBL137082R1322
EAN	3471523157033
Catalog Description	AFS09-30-22-13 100-250V50/60HZ-DC Contactor

Long Description	<p>The AFS09-30-22-13 is a 3 pole - 690 V IEC or 600 V UL contactor with fixed 2 N.O + 2 N.C. front mounted auxiliary contact blocks with screw connections, controlling motors up to 4 kW / 400 V AC (AC-3) or 5 hp / 480 V UL and switching power circuits up to 25 A (AC-1) or 25 A UL general use. AFS contactors can be easily integrated in machine manufacturer's systems complying with main standards EN ISO 13849 and EN 62061 - guaranteeing the safe use of your machinery and equipment. An easily identifiable yellow low energy auxiliary contact block ensures the status feedback circuits required in machine safety applications. Thanks to the AF technology, the contactor has a wide control voltage range (100 ... 250 V), managing large control voltage variations, reducing panel energy consumptions and ensuring distinct operations in unstable networks. Furthermore, surge protection is built-in, offering a compact solution. AF contactors have a block type design, can be easily extended with add-on auxiliary contact blocks and an additional wide range of accessories.</p>
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Ordering

Minimum Order Quantity	1 piece
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Customs Tariff Number

85364900

Popular Downloads

Data Sheet, Technical Information	1SBC100214C0202
Instructions and Manuals	1SBC101052M6801
CAD Dimensional Drawing	2CDC001079B0201
Dimension Diagram	DNV_TAE00001AF-4

Dimensions

Product Net Width	45 mm
Product Net Depth / Length	110.5 mm
Product Net Height	86 mm
Product Net Weight	0.32 kg

Technical

Number of Main Contacts NO	3
Number of Main Contacts NC	0
Number of Auxiliary Contacts NO	2
Number of Auxiliary Contacts NC	2
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
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 °C 25 A (690 V) 60 °C 25 A (690 V) 70 °C 22 A
Rated Operational Current AC-3 (I _e)	(415 V) 60 °C 9 A (440 V) 60 °C 9 A (500 V) 60 °C 9.5 A (690 V) 60 °C 7 A (380 / 400 V) 60 °C 9 A (220 / 230 / 240 V) 60 °C 9 A
Rated Operational Current AC-3e (I _e)	(415 V) 60 °C 9 A (440 V) 60 °C 9 A (500 V) 60 °C 9.5 A (690 V) 60 °C 7 A (380 / 400 V) 60 °C 9 A (220 / 230 / 240 V) 60 °C 9 A
Rated Operational 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 °C 10 A
 (110 V) 1-Pole, 60 °C 10 A
 (110 V) 1-Pole, 70 °C 10 A
 (110 V) 2 Poles in Series, 40 °C 25 A
 (110 V) 2 Poles in Series, 60 °C 25 A
 (110 V) 2 Poles in Series, 70 °C 22 A
 (110 V) 3 Poles in Series, 40 °C 25 A
 (110 V) 3 Poles in Series, 60 °C 25 A
 (110 V) 3 Poles in Series, 70 °C 22 A
 (220 V) 2 Poles in Series, 40 °C 10 A
 (220 V) 2 Poles in Series, 60 °C 10 A
 (220 V) 2 Poles in Series, 70 °C 10 A
 (220 V) 3 Poles in Series, 40 °C 25 A
 (220 V) 3 Poles in Series, 60 °C 25 A
 (220 V) 3 Poles in Series, 70 °C 22 A
 (72 V) 1-Pole, 40 °C 25 A
 (72 V) 1-Pole, 60 °C 25 A
 (72 V) 1-Pole, 70 °C 22 A
 (72 V) 2 Poles in Series, 40 °C 25 A
 (72 V) 2 Poles in Series, 60 °C 25 A
 (72 V) 2 Poles in Series, 70 °C 22 A
 (72 V) 3 Poles in Series, 40 °C 25 A
 (72 V) 3 Poles in Series, 60 °C 25 A
 (72 V) 3 Poles in Series, 70 °C 22 A

Rated Operational
Current DC-3 (I_e)

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

Rated Operational
Current DC-5 (I_e)

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

		(72 V) 3 Poles in Series, 70 °C 22 A
Rated Operational Current DC-13 (I_e)		(24 V) 6 A / 144 W (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 AC-3 (P_e)		(400 V) 4 kW (415 V) 4 kW (440 V) 4 kW (500 V) 5.5 kW (690 V) 5.5 kW (380 / 400 V) 4 kW (220 / 230 / 240 V) 2.2 kW
Rated Operational Power AC-3e (P_e)		(415 V) 4 kW (440 V) 4 kW (500 V) 5.5 kW (690 V) 5.5 kW (380 / 400 V) 4 kW (220 / 230 / 240 V) 2.2 kW
Rated Short-time Withstand Current Low Voltage (I_{cw})		at 40 °C Ambient Temp, in Free Air, from a Cold State 10 s 150 A at 40 °C Ambient Temp, in Free Air, from a Cold State 15 min 35 A at 40 °C Ambient Temp, in Free Air, from a Cold State 1 min 60 A at 40 °C Ambient Temp, in Free Air, from a Cold State 1 s 300 A at 40 °C Ambient Temp, in Free Air, from a Cold State 30 s 80 A 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 100 ... 250 V 60 Hz 100 ... 250 V DC Operation 100 ... 250 V
Power Loss		at 6 A per Pole 0.1 W at Rated Operating Conditions AC-1 per Pole 0.8 W at Rated Operating Conditions AC-3 per Pole 0.1 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 0.75 ... 6 mm ² Flexible with Insulated Ferrule 1x 0.75 ... 4 mm ² Flexible with Insulated Ferrule 2x 0.75 ... 2.5 mm ² Rigid Solid 1/2x 1 ... 4 mm ² Rigid Stranded 1/2x 1 ... 6 mm ²
Connecting Capacity		Flexible with Ferrule 1/2x 0.75 ... 2.5 mm ²

Auxiliary Circuit	Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm ² Flexible with Insulated Ferrule 1x 0.75 ... 2.5 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ² Rigid Stranded 1/2x 1 ... 2.5 mm ²
Connecting Capacity Control Circuit	Flexible with Ferrule 1/2x 0.75 ... 2.5 mm ² Flexible with Insulated Ferrule 1x 0.75 ... 2.5 mm ² Flexible with Insulated Ferrule 2x 0.75 ... 1.5 mm ² Rigid Solid 1/2x 1 ... 2.5 mm ² Rigid Stranded 1/2x 1 ... 2.5 mm ²
Wire Stripping Length	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
Tightening Torque	Auxiliary Circuit 1.2 N-m Control Circuit 1.2 N-m Main Circuit 1.5 N-m
Terminal Type	Screw 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) 25 A
Horsepower Rating UL/CSA	(120 V AC) Single Phase 3/4 hp (200 ... 208 V AC) Three Phase 2 hp (220 ... 240 V AC) Three Phase 2 hp (240 V AC) Single Phase 1-1/2 hp (440 ... 480 V AC) Three Phase 5 hp (550 ... 600 V AC) Three Phase 7-1/2 hp
Connecting Capacity Main Circuit UL/CSA	Rigid Solid 1/2x 16-10 AWG Rigid Stranded 1/2x 16-10 AWG
Connecting Capacity Auxiliary Circuit UL/CSA	Rigid Solid 1/2x 18-14 AWG Rigid Stranded 1/2x 18-14 AWG
Connecting Capacity Control Circuit UL/CSA	Rigid Solid 1/2x 18-14 AWG Rigid Stranded 1/2x 18-14 AWG
Tightening Torque UL/CSA	Auxiliary Circuit 11 in-lb Control Circuit 11 in-lb Main Circuit 13 in-lb
Full Load Amps Motor Use	(120 V AC) Single Phase 13.8 A (200 ... 208 V AC) Three Phase 7.8 A (220 ... 240 V AC) Three Phase 6.8 A (240 V AC) Single Phase 10 A (440 ... 480 V AC) Three Phase 7.6 A (550 ... 600 V AC) Three Phase 9 A

Environmental

Ambient Air Temperature	Close to Contactor Fitted with Thermal O/L Relay -25 ... 60 °C 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 Shock acc. to IEC 60068-2-27	Closed, Shock Direction: A 30 g Closed, Shock Direction: B1 25 g Closed, Shock Direction: B2 15 g Closed, Shock Direction: C1 25 g Closed, Shock Direction: C2 25 g

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
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

End Of Life Disassembling Instructions	1SBC101080M6801
Environmental Product Declaration - EPD	1SBD250584E3000
Sustainable Material Content in Packaging (wt. %)	Recycled Cardboard - 86 %
Sustainable Material Content in Product (wt. %)	Recycled Metal - 28 %

Certificates and Declarations

A2L Certificate – UL	9AKK108469A4875;9AKK108469A4879
ABS Certificate	ABS_20-2060694-PDA
CB Certificate	CB_SE-113345
CCC Certificate	CCC_2010010304445624
CQC Certificate	CQC2010010304445624
Declaration of Conformity - CCC	2020980304001253
Declaration of Conformity - CE	1SBD250022U1000
Declaration of Conformity - UKCA	1SBD250044U1000
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
UL Listing Card	E312527

Container Information

Package Level 1 Units	box 1 piece
Package Level 1 Width	87 mm

Package Level 1 Depth / Length	113 mm
Package Level 1 Height	47 mm
Package Level 1 Gross Weight	0.32 kg
Package Level 1 EAN	3471523157033
Package Level 2 Units	box 18 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	11.52 kg
Package Level 3 Units	864 piece

External Classifications and Standards

Object Classification Code	Q
ETIM 7	EC000066 - Power contactor, AC switching
ETIM 8	EC000066 - Power contactor, AC switching
ETIM 9	EC000066 - Power contactor, AC switching
eClass	V11.0 : 27371003
UNSPSC	39121529
IDEA Granular Category Code (IGCC)	4758 >> Iec Contactors
E-Number (Finland)	3708062
E-Number (Sweden)	3210661

Accessories

Identifier	Description	Type	Quantity	Unit Of Measure
1SBN010120R1011	CAL4-11 Auxiliary Contact Block	CAL4-11	1	piece

Categories

Low Voltage Products and Systems → Control Products → Contactors → Block Contactors → AFS Contactors → AFS09

