

AF40 ... AF80 4-pole contactors

70 to 125 A AC-1

AC / DC operated



AF40-40-00

1SBC101049V0014



AF80-40-00

1SBC101048V0014

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Description

AF40 ... AF80 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltages ranges covering 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening.
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

Ordering details

IEC	UL/CSA	Rated control circuit voltage		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1	General use rating 600 V AC	Uc min.	Uc max.				Pkg (1 pce) kg
A	A	V 50/60 Hz	V DC				

4 N.O. Main Poles

70	60	24...60	-	0 0	AF40-40-00-41	1SBL347201R4100	1.210
		24...60	20...60 (1)	0 0	AF40-40-00-11	1SBL347201R1100	1.210
		48...130	48...130	0 0	AF40-40-00-12	1SBL347201R1200	1.210
		100...250	100...250	0 0	AF40-40-00-13	1SBL347201R1300	1.160
	(2)	250...500	250...500	0 0	AF40-40-00-14	1SBL347201R1400	1.160
100	80	24...60	-	0 0	AF52-40-00-41	1SBL367201R4100	1.210
		24...60	20...60 (1)	0 0	AF52-40-00-11	1SBL367201R1100	1.210
		48...130	48...130	0 0	AF52-40-00-12	1SBL367201R1200	1.210
		100...250	100...250	0 0	AF52-40-00-13	1SBL367201R1300	1.160
	(2)	250...500	250...500	0 0	AF52-40-00-14	1SBL367201R1400	1.160
125	105	24...60	-	0 0	AF80-40-00-41	1SBL397201R4100	1.490
		24...60	20...60 (1)	0 0	AF80-40-00-11	1SBL397201R1100	1.490
		48...130	48...130	0 0	AF80-40-00-12	1SBL397201R1200	1.490
		100...250	100...250	0 0	AF80-40-00-13	1SBL397201R1300	1.440
	(2)	250...500	250...500	0 0	AF80-40-00-14	1SBL397201R1400	1.440

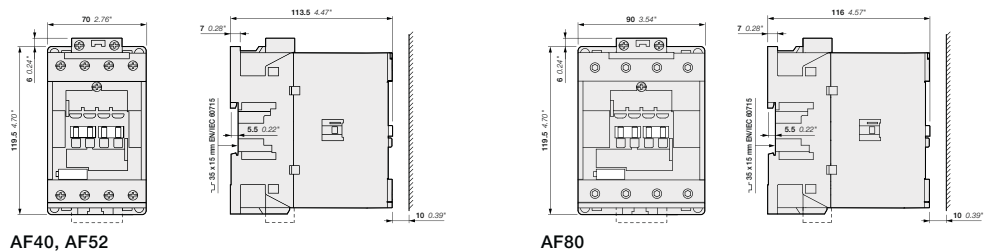
2 N.O. + 2 N.C. Main Poles

70	60	24...60	-	0 0	AF40-22-00-41	1SBL347501R4100	1.210
		24...60	20...60 (1)	0 0 <td>AF40-22-00-11</td> <td>1SBL347501R1100</td> <td>1.210</td>	AF40-22-00-11	1SBL347501R1100	1.210
		48...130	48...130	0 0 <td>AF40-22-00-12</td> <td>1SBL347501R1200</td> <td>1.210</td>	AF40-22-00-12	1SBL347501R1200	1.210
		100...250	100...250	0 0 <td>AF40-22-00-13</td> <td>1SBL347501R1300</td> <td>1.160</td>	AF40-22-00-13	1SBL347501R1300	1.160
	(2)	250...500	250...500	0 0 <td>AF40-22-00-14</td> <td>1SBL347501R1400</td> <td>1.160</td>	AF40-22-00-14	1SBL347501R1400	1.160
125	105	24...60	-	0 0 <td>AF80-22-00-41</td> <td>1SBL397501R4100</td> <td>1.490</td>	AF80-22-00-41	1SBL397501R4100	1.490
		24...60	20...60 (1)	0 0 <td>AF80-22-00-11</td> <td>1SBL397501R1100</td> <td>1.490</td>	AF80-22-00-11	1SBL397501R1100	1.490
		48...130	48...130	0 0 <td>AF80-22-00-12</td> <td>1SBL397501R1200</td> <td>1.490</td>	AF80-22-00-12	1SBL397501R1200	1.490
		100...250	100...250	0 0 <td>AF80-22-00-13</td> <td>1SBL397501R1300</td> <td>1.440</td>	AF80-22-00-13	1SBL397501R1300	1.440
	(2)	250...500	250...500	0 0 <td>AF80-22-00-14</td> <td>1SBL397501R1400</td> <td>1.440</td>	AF80-22-00-14	1SBL397501R1400	1.440

(1) AF.-...-11 not suitable for direct control by PLC-output.

(2) In progress.

Main dimensions mm, inches



AF40, AF52

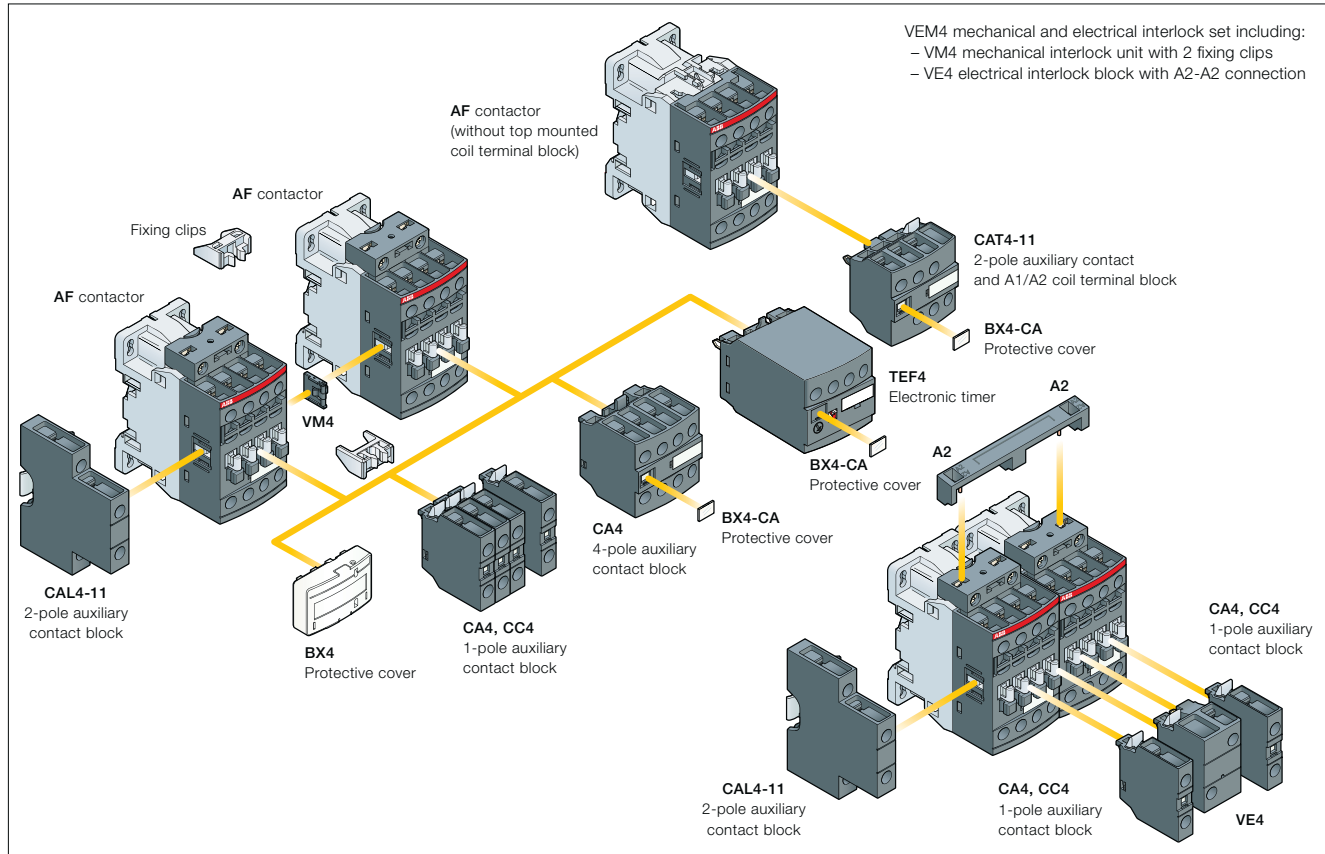
AF80

1SBC101987S0201 - Rev. B

AF09 ... AF80 4-pole contactors

Main accessories

Contactor and main accessories (other accessories available)



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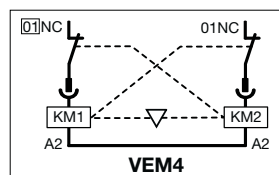
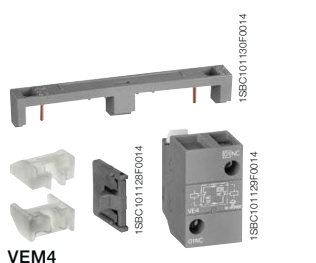
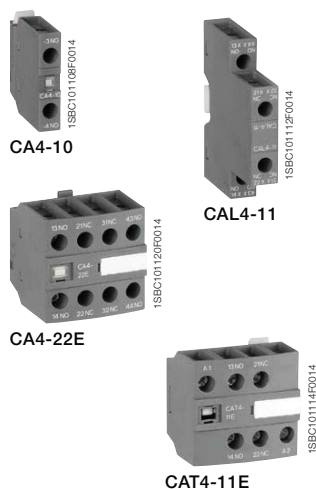
Main accessory fitting details

Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories				Side-mounted accessories			
			Auxiliary contact blocks			Electronic timer	Electrical and mechanical interlock set (between 2 contactors)	Auxiliary contact blocks		
			1-pole CA4 1-pole CC4	2-pole CAT4-11	4-pole CA4	TEF4	VEM4	Left side 2-pole CAL4-11	Right side	
Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5										
AF09 ... AF16	4	0	0	0	4 max. or 1	or 1	or 1	-	+ 1	-
					2 max. or 1	-	or 1	-	+ 1	+ 1
					3 max. -	-	-	+ 1	+ 1	or 1
Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5										
AF26 ... AF38	4	0	0	0	4 max. or 1	or 1	or 1	-	+ 1	-
					2 max. or 1	-	or 1	-	+ 1	+ 1
					3 max. -	-	-	+ 1	+ 1	or 1
Max. add-on N.C. auxiliary contacts: 6 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5										
AF40 ... AF52	4	0	0	0	4 max. or 1	or 1	or 1	-	+ 1	+ 1
AF80	4	0	0	0	4 max. -	or 1	or 1	-	+ 1	+ 1
Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5										
AF09 ... AF16	2	2	0	0	4 max. or 1	or 1	or 1	-	+ 1	-
AF26 ... AF38	2	2	0	0	2 max. or 1	-	or 1	-	+ 1	+ 1
Max. add-on N.C. auxiliary contacts: 2 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5										
AF40	2	2	0	0	4 max. or 1	or 1	or 1	-	+ 1	-
	2	2	0	0	4 max. -	or 1	or 1	-	+ 1	+ 1
AF80	2	2	0	0	4 max. -	or 1	or 1	-	+ 1	+ 1

AF09 ... AF80 4-pole contactors

Main accessories



Ordering details (1)

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg

Front-mounted instantaneous auxiliary contact blocks

AF09 ... AF80-40-00	1 0	- -	CA4-10	1SBN010110R1010	1	0.014
AF09 ... AF80-22-00	1 0	- -	CA4-10-T	1SBN010110T1010	10	0.014
	0 1	- -	CA4-01	1SBN010110R1001	1	0.014
	0 1	- -	CA4-01-T	1SBN010110T1001	10	0.014
	2 2	- -	CA4-22E	1SBN010140R1022	1	0.055
	3 1	- -	CA4-31E	1SBN010140R1031	1	0.055
	4 0	- -	CA4-40E	1SBN010140R1040	1	0.055
AF09 ... AF16...-40-00	0 4	- -	CA4-04E	1SBN010140R1004	1	0.055

Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact

AF09 ... AF80-40-00	- -	1 0	CC4-10	1SBN010111R1010	1	0.014
AF09 ... AF80-22-00	- -	0 1	CC4-01	1SBN010111R1001	1	0.014

Side-mounted instantaneous auxiliary contact blocks

AF09 ... AF80-40-00	1 1	- -	CAL4-11	1SBN010120R1011	1	0.040
AF09 ... AF80-22-00	1 1	- -	CAL4-11-T	1SBN010120T1011	10	0.040

Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks

AF09 ... AF52...-40-00	1 1	- -	CAT4-11E	1SBN010151R1011	1	0.040
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Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

Mechanical interlock unit

AF09 ... AF38...-40-00			VM4	1SBN030105T1000	10	0.005
AF40 ... AF80...-40-00			VM96-4	1SBN033405T1000	10	0.006

Note: VM4 includes 2 fixing clips (BB4) to maintain together both contactors.

Mechanical and electrical interlock set

AF09, AF16...-40-00	0 2	- -	VEM4	1SBN030111R1000	1	0.035
AF26, AF38...-40-00						

Note: - VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.
- VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
							kg

Electronic timers

AF09 ... AF80	0.1...1 s 1...10 s 10...100 s	ON-delay OFF-delay	1 1 1 1	TEF4-ON TEF4-OFF	1SBN020112R1000 1SBN020114R1000	1 1	0.065 0.065
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Note: Rated control circuit voltage U_c 24...240 V 50/60 Hz or DC.

(1) For more information, refer to main catalog "Accessories" section.

AF116 ... AF140 4-pole contactors

160 to 200 A AC-1

AC / DC operated



AF140-40-00

1SFC101198V0001



AF140-40-00B

1SFC101198V0001

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Description

AF116 ... AF140 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC	UL / CSA	Rated operational current	Rated control circuit voltage	Auxiliary contacts fitted	Type (1)	Order code	Weight
AC-1	General use rating 600 V AC	$\theta \leq 40^\circ\text{C}$	Uc min. ... Uc max.				Pkg (1 pce) kg
A	A		V 50/60 Hz V DC				

4 N.O. main poles

For connection with built-in cable clamps

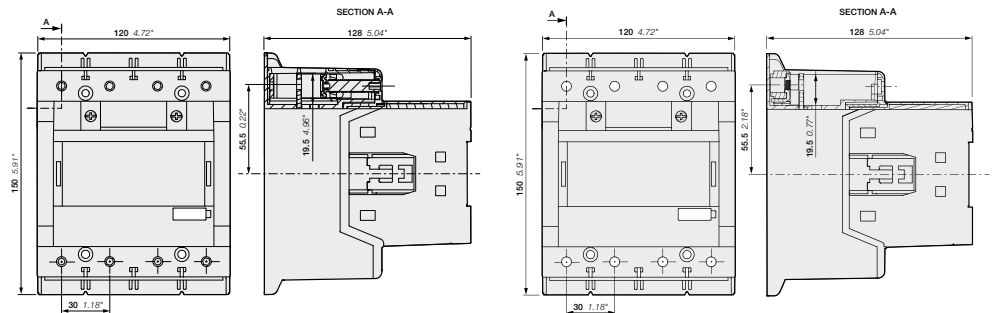
Rated current	UL / CSA	Uc min.	Uc max.	0	0	Type	Order code	Weight
160	160	24...60	20...60	0	0	AF116-40-00-11	1SFL427101R1100	2.250
		48...130	48...130	0	0	AF116-40-00-12	1SFL427101R1200	2.250
		100...250	100...250	0	0	AF116-40-00-13	1SFL427101R1300	2.250
		250...500	250...500	0	0	AF116-40-00-14	1SFL427101R1400	2.250
200	175	24...60	20...60	0	0	AF140-40-00-11	1SFL447101R1100	2.250
		48...130	48...130	0	0	AF140-40-00-12	1SFL447101R1200	2.250
		100...250	100...250	0	0	AF140-40-00-13	1SFL447101R1300	2.250
		250...500	250...500	0	0	AF140-40-00-14	1SFL447101R1400	2.250

With bar connections

Rated current	UL / CSA	Uc min.	Uc max.	0	0	Type	Order code	Weight
160	160	24...60	20...60	0	0	AF116-40-00B-11	1SFL427102R1100	2.150
		48...130	48...130	0	0	AF116-40-00B-12	1SFL427102R1200	2.150
		100...250	100...250	0	0	AF116-40-00B-13	1SFL427102R1300	2.150
		250...500	250...500	0	0	AF116-40-00B-14	1SFL427102R1400	2.150
200	175	24...60	20...60	0	0	AF140-40-00B-11	1SFL447102R1100	2.150
		48...130	48...130	0	0	AF140-40-00B-12	1SFL447102R1200	2.150
		100...250	100...250	0	0	AF140-40-00B-13	1SFL447102R1300	2.150
		250...500	250...500	0	0	AF140-40-00B-14	1SFL447102R1400	2.150

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.

Main dimensions mm, inches



AF116, AF140-40-00

AF116, AF140-40-00B

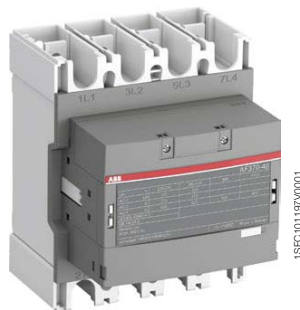
AF190 ... AF370 4-pole contactors

275 to 525 A AC-1

AC / DC operated



AF205-40-00





AF370-40-00

Description

AF190 ... AF370 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC. These contactors are of the block type design with 4 main poles.

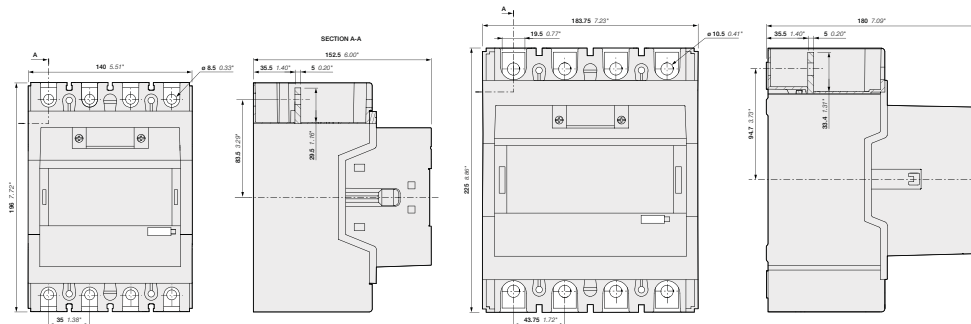
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC	UL / CSA	Rated control circuit voltage		Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1	General use rating 600 V AC	Uc min. ... Uc max.					Pkg (1 pce)
A	A	V 50/60 Hz	V DC	 			kg
4 N.O. main poles							
275	230	24...60	20...60	0 0	AF190-40-00-11	1SFL487102R1100	3.900
		48...130	48...130	0 0	AF190-40-00-12	1SFL487102R1200	3.900
		100...250	100...250	0 0	AF190-40-00-13	1SFL487102R1300	3.900
		250...500	250...500	0 0	AF190-40-00-14	1SFL487102R1400	3.900
350	250	24...60	20...60	0 0	AF205-40-00-11	1SFL527102R1100	3.900
		48...130	48...130	0 0	AF205-40-00-12	1SFL527102R1200	3.900
		100...250	100...250	0 0	AF205-40-00-13	1SFL527102R1300	3.900
		250...500	250...500	0 0	AF205-40-00-14	1SFL527102R1400	3.900
400	300	24...60	20...60	0 0	AF265-40-00-11	1SFL547102R1100	6.360
		48...130	48...130	0 0	AF265-40-00-12	1SFL547102R1200	6.360
		100...250	100...250	0 0	AF265-40-00-13	1SFL547102R1300	6.360
		250...500	250...500	0 0	AF265-40-00-14	1SFL547102R1400	6.360
500	350	24...60	20...60	0 0	AF305-40-00-11	1SFL587102R1100	6.360
		48...130	48...130	0 0	AF305-40-00-12	1SFL587102R1200	6.360
		100...250	100...250	0 0	AF305-40-00-13	1SFL587102R1300	6.360
		250...500	250...500	0 0	AF305-40-00-14	1SFL587102R1400	6.360
525	420	24...60	20...60	0 0	AF370-40-00-11	1SFL607102R1100	6.360
		48...130	48...130	0 0	AF370-40-00-12	1SFL607102R1200	6.360
		100...250	100...250	0 0	AF370-40-00-13	1SFL607102R1300	6.360
		250...500	250...500	0 0	AF370-40-00-14	1SFL607102R1400	6.360

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.

Main dimensions mm, inches



AF190, AF205

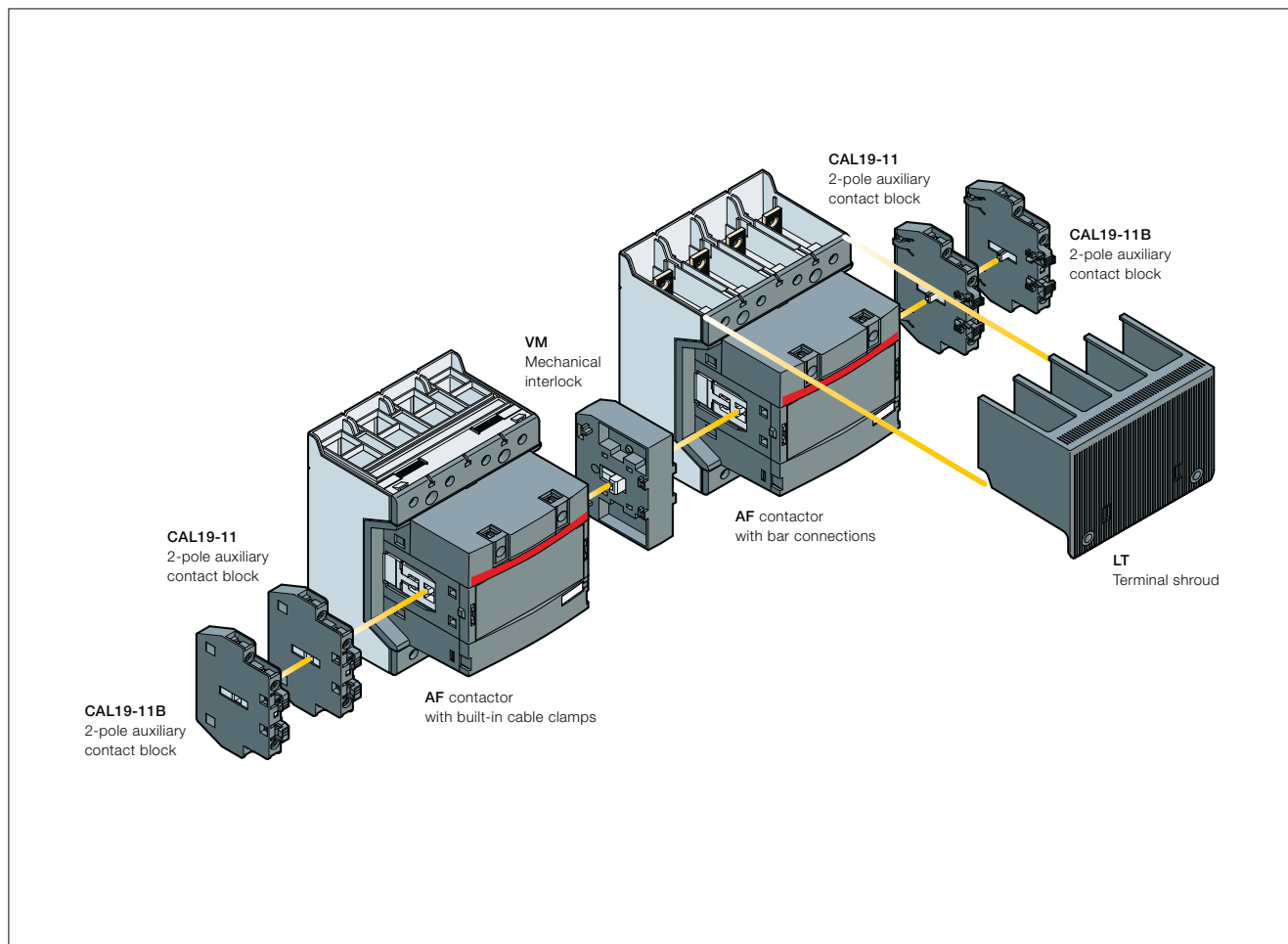
AF265, AF305, AF370

AF116 ... AF370 4-pole contactors

Main accessories

Main accessories (other accessories available)

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Main accessory fitting details

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories		
			Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11	CAL19-11B	
AF116 ... AF370	4	0 0 0	2 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	4	0 0 0	2 x CAL19-11 (1)	+ 2 x CAL19-11B (1)	+ VM... (2)

(1) Total number of auxiliary contact blocks for the two contactors.

(2) Interlock type, according to the contactor ratings (see "Accessories").

AF116 ... AF370 4-pole contactors

Main accessories



1SFC101071W001

CAL19-11



1SFC10108V0001

VM19

Ordering details (1)

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg

Side-mounted instantaneous auxiliary contact blocks

AF116 ... AF370	1	1	CAL19-11	1SFN010820R1011	2	0.050
	1	1	CAL19-11B	1SFN010820R3311	2	0.050

Mechanical interlock unit

AF116 ... AF370		VM19	1SFN030300R1000	1	0.054
AF116 ... AF146 and AF190, AF205		VM140/190	1SFN034403R1000	1	0.088
AF190, AF205 and AF265 ... AF370		VM205/265	1SFN035203R1000	1	0.090

Terminal shrouds

AF116 ... AF140, with compression lugs	LT140-40L	1SFN124203R2000	2	0.090
AF190 ... AF205, with cable clamps	LT205-40C	1SFN124801R2000	2	0.060
AF190 ... AF205, with compression lugs	LT205-40L	1SFN124803R2000	2	0.290
AF265 ... AF370, with cable clamps	LT370-40C	1SFN125401R2000	2	0.040
AF265 ... AF370, with compression lugs	LT370-40L	1SFN125403R2000	2	0.370

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For contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce)
	hole Ø mm	bar mm				
						kg

Terminal enlargements

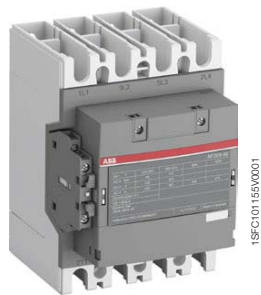
AF190 ... AF205	10.5	20 x 5	LW205-40	1SFN074807R2000	1	0.306
AF265 ... AF370	10.5	25 x 5	LW370-40	1SFN075407R2000	1	0.540

(1) For more information, refer to "Accessories" section.

AF190 ... AF370 4-pole contactors

275 to 525 A AC-1

AC / DC operated with 1 N.O. + 1 N.C. auxiliary contacts



AF205-40-11



AF370-40-11

Description

AF190 ... AF370 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC. These contactors are of the block type design with 4 main poles.

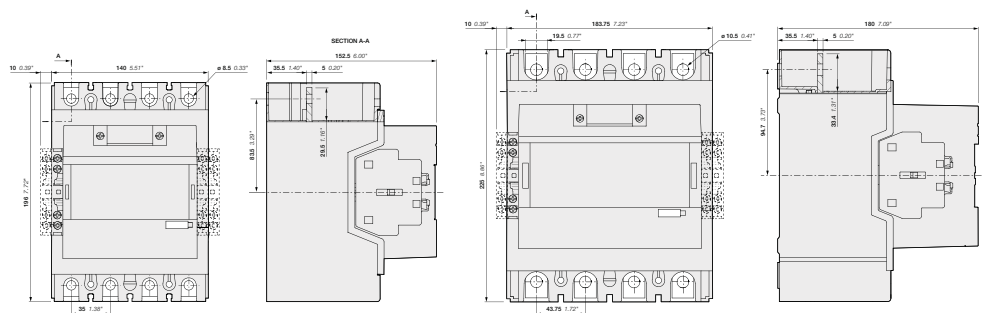
- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC Rated operational current $\theta \leq 40^\circ\text{C}$ AC-1	UL / CSA General use rating 600 V AC	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Type (1)	Order code	Weight Pkg (1 pce) kg
A	A	V 50/60 Hz	V DC					
4 N.O. main poles								
275	230	24...60	20...60	1	1	AF190-40-11-11	1SFL487102R1111	3.920
		48...130	48...130	1	1	AF190-40-11-12	1SFL487102R1211	3.920
		100...250	100...250	1	1	AF190-40-11-13	1SFL487102R1311	3.920
350	250	250...500	250...500	1	1	AF190-40-11-14	1SFL487102R1411	3.920
		24...60	20...60	1	1	AF205-40-11-11	1SFL527102R1111	3.920
		48...130	48...130	1	1	AF205-40-11-12	1SFL527102R1211	3.920
400	300	100...250	100...250	1	1	AF205-40-11-13	1SFL527102R1311	3.920
		250...500	250...500	1	1	AF205-40-11-14	1SFL527102R1411	3.920
		24...60	20...60	1	1	AF265-40-11-11	1SFL547102R1111	6.380
500	350	48...130	48...130	1	1	AF265-40-11-12	1SFL547102R1211	6.380
		100...250	100...250	1	1	AF265-40-11-13	1SFL547102R1311	6.380
		250...500	250...500	1	1	AF265-40-11-14	1SFL547102R1411	6.380
525	420	24...60	20...60	1	1	AF305-40-11-11	1SFL587102R1111	6.380
		48...130	48...130	1	1	AF305-40-11-12	1SFL587102R1211	6.380
		100...250	100...250	1	1	AF305-40-11-13	1SFL587102R1311	6.380
525	420	250...500	250...500	1	1	AF305-40-11-14	1SFL587102R1411	6.380
		24...60	20...60	1	1	AF370-40-11-11	1SFL607102R1111	6.380
		48...130	48...130	1	1	AF370-40-11-12	1SFL607102R1211	6.380
525	420	100...250	100...250	1	1	AF370-40-11-13	1SFL607102R1311	6.380
		250...500	250...500	1	1	AF370-40-11-14	1SFL607102R1411	6.380

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.

Main dimensions mm, inches



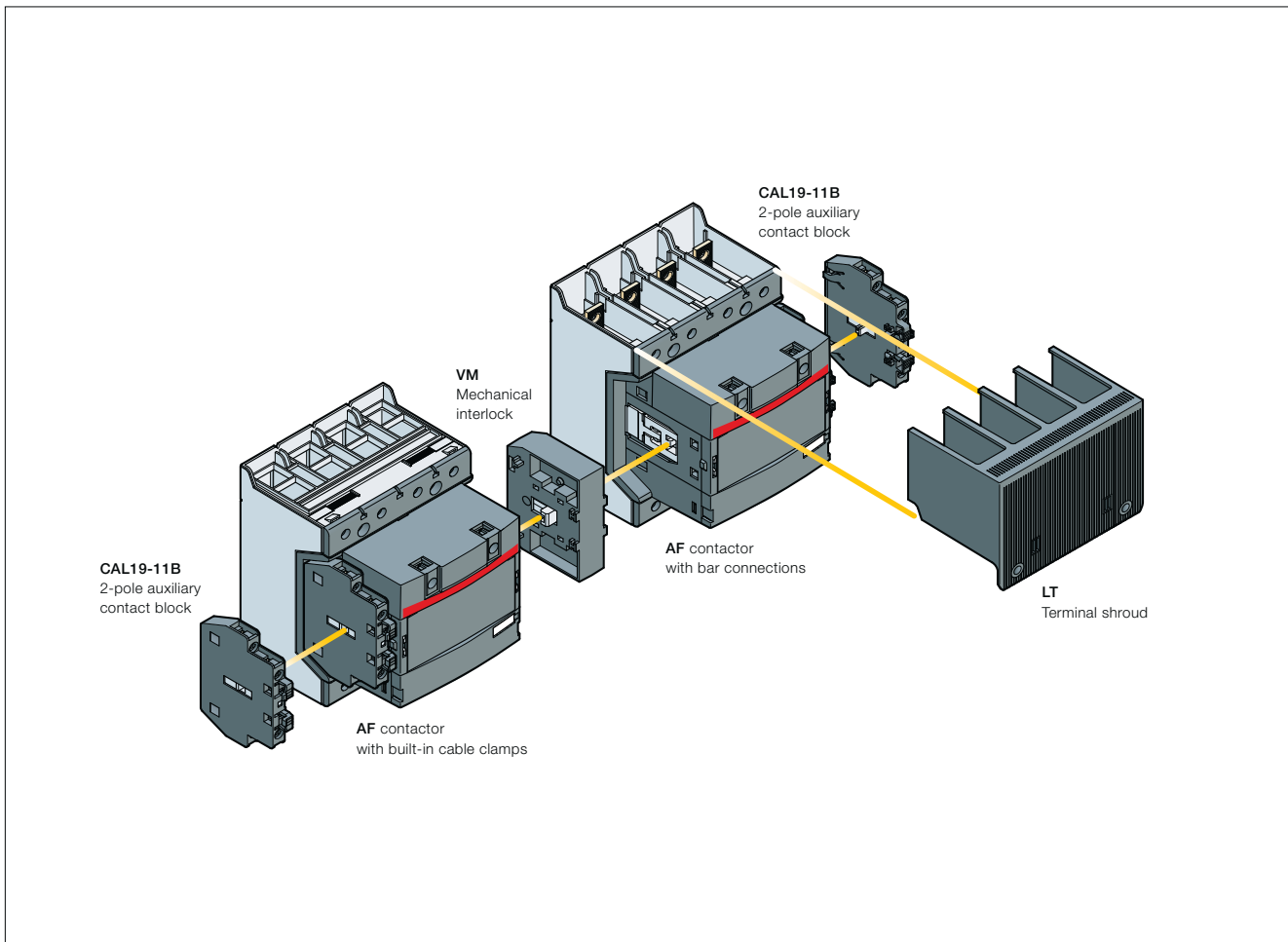
AF190, AF205

AF265, AF305, AF370

AF116 ... AF370 4-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories

Main accessories (other accessories available)

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Main accessory fitting details

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories		
			Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11	CAL19-11B	
AF116 ... AF370	4	0 1 1	1 x CAL19-11	+ 2 x CAL19-11B	-
AF116 ... AF370	4	0 1 1	-	+ 2 x CAL19-11B (1)	+ VM... (2)

(1) Total number of auxiliary contact blocks for the two contactors.

(2) Interlock type, according to the contactor ratings (see "Accessories").

AF116 ... AF370 4-pole contactors with 1 N.O. + 1 N.C. auxiliary contacts Main accessories



CAL19-11

1SFC101071V0001



VM19

1SFC101033V0001

Ordering details (1)

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg

Side-mounted instantaneous auxiliary contact blocks

AF116 ... AF370	1	1	CAL19-11	1SFN010820R1011	2	0.050
	1	1	CAL19-11B	1SFN010820R3311	2	0.050

Mechanical interlock unit

AF116 ... AF370			VM19	1SFN030300R1000	1	0.054
AF116 ... AF146 and AF190, AF205			VM140/190	1SFN034403R1000	1	0.088
AF190, AF205 and AF265 ... AF370			VM205/265	1SFN035203R1000	1	0.090

Terminal shrouds

AF116 ... AF140, with compression lugs			LT140-40L	1SFN124203R2000	2	0.090
AF190 ... AF205, with cable clamps			LT205-40C	1SFN124801R2000	2	0.060
AF190 ... AF205, with compression lugs			LT205-40L	1SFN124803R2000	2	0.290
AF265 ... AF370, with cable clamps			LT370-40C	1SFN125401R2000	2	0.040
AF265 ... AF370, with compression lugs			LT370-40L	1SFN125403R2000	2	0.370

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For contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce)
	hole Ø mm	bar mm				
						kg

Terminal enlargements

AF190 ... AF205	10.5	20 x 5	LW205-40	1SFN074807R2000	1	0.306
AF265 ... AF370	10.5	25 x 5	LW370-40	1SFN075407R2000	1	0.540

(1) For more information, refer to "Accessories" section.

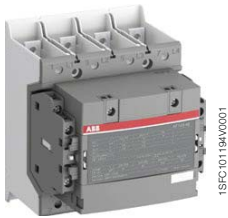
AF116 ... AF140 4-pole contactors

160 to 200 A AC-1

AC / DC operated with 2 N.O. + 2 N.C. auxiliary contacts



AF140-40-22



AF140-40-22B

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Description

AF116 ... AF140 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 coils to cover control voltages between 24...500 V 50/60 Hz and 20...500 V DC
- can manage large control voltage variations
- reduced panel energy consumption
- very distinct closing and opening
- can withstand short voltage dips and voltage sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

Ordering details

IEC	UL / CSA	Rated operational current		Rated control circuit voltage	Auxiliary contacts fitted	Type (1)	Order code	Weight
Rated operational current	General use rating	Uc min.	Uc max.	Uc min. ... Uc max.				Pkg (1 pce)
$\theta \leq 40^\circ\text{C}$	600 V AC							kg
AC-1	A	V 50/60 Hz	V DC					

4 N.O. main poles

For connection with built-in cable clamps

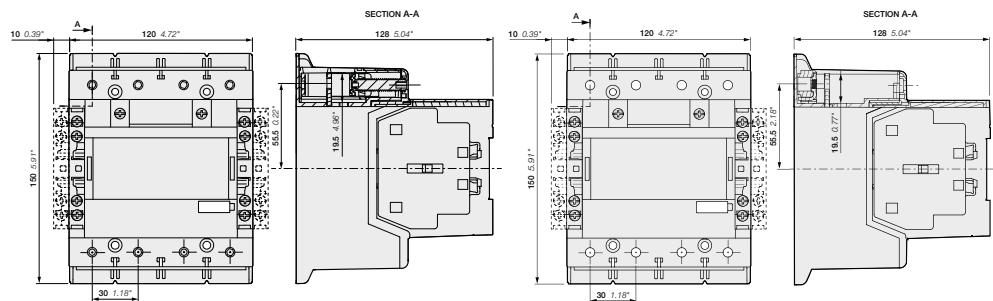
Rated current	UL / CSA	Uc min.	Uc max.	NO	NC	Type	Order code	Weight
160	160	24...60	20...60	2	2	AF116-40-22-11	1SFL427101R1122	2.290
		48...130	48...130	2	2	AF116-40-22-12	1SFL427101R1222	2.290
		100...250	100...250	2	2	AF116-40-22-13	1SFL427101R1322	2.290
		250...500	250...500	2	2	AF116-40-22-14	1SFL427101R1422	2.290
200	175	24...60	20...60	2	2	AF140-40-22-11	1SFL447101R1122	2.290
		48...130	48...130	2	2	AF140-40-22-12	1SFL447101R1222	2.290
		100...250	100...250	2	2	AF140-40-22-13	1SFL447101R1322	2.290
		250...500	250...500	2	2	AF140-40-22-14	1SFL447101R1422	2.290

With bar connections

Rated current	UL / CSA	Uc min.	Uc max.	NO	NC	Type	Order code	Weight
160	160	24...60	20...60	2	2	AF116-40-22B-11	1SFL427102R1122	2.190
		48...130	48...130	2	2	AF116-40-22B-12	1SFL427102R1222	2.190
		100...250	100...250	2	2	AF116-40-22B-13	1SFL427102R1322	2.190
		250...500	250...500	2	2	AF116-40-22B-14	1SFL427102R1422	2.190
200	175	24...60	20...60	2	2	AF140-40-22B-11	1SFL447102R1122	2.190
		48...130	48...130	2	2	AF140-40-22B-12	1SFL447102R1222	2.190
		100...250	100...250	2	2	AF140-40-22B-13	1SFL447102R1322	2.190
		250...500	250...500	2	2	AF140-40-22B-14	1SFL447102R1422	2.190

(1) For other auxiliary contacts arrangements, please contact your ABB local organization.

Main dimensions mm, inches



AF116, AF140-40-11

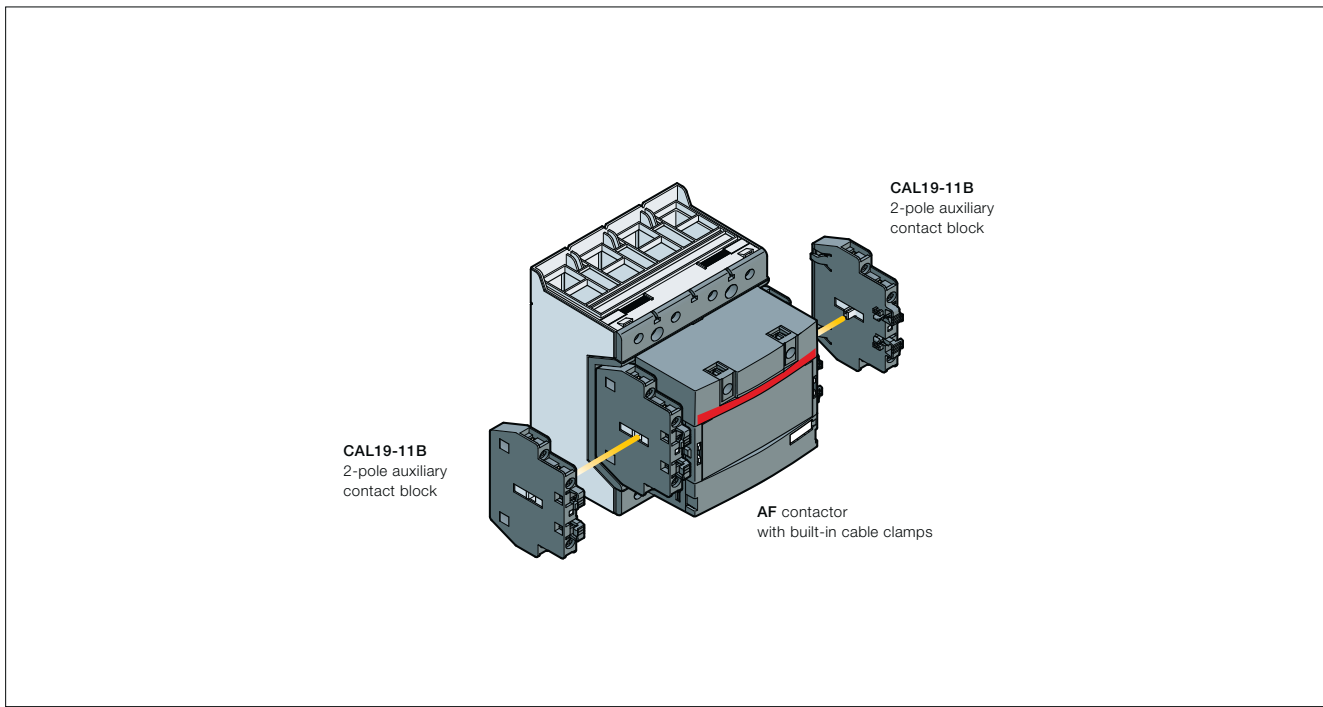
AF116, AF140-40-11B

1SFC101201C02001 - Rev. A

AF116 ... AF370 4-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts Main accessories

Main accessories (other accessories available)

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Main accessory fitting details

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories		
			Auxiliary contact blocks		Mechanical interlock units (between two contactors)
			CAL19-11	CAL19-11B	
AF116 ... AF370	4	0 2 2	-	+ 2 x CAL19-11B	-

AF116 ... AF370 4-pole contactors with 2 N.O. + 2 N.C. auxiliary contacts Main accessories



1SFC101071V0001

CAL19-11

Ordering details (1)

For contactors	Auxiliary contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg

Side-mounted instantaneous auxiliary contact blocks

AF116 ... AF370	1	1	CAL19-11B	1SFN010820R3311	2	0.050
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Terminal shrouds

AF116 ... AF140, with compression lugs	LT140-40L	1SFN124203R2000	2	0.090
AF190 ... AF205, with cable clamps	LT205-40C	1SFN124801R2000	2	0.060
AF190 ... AF205, with compression lugs	LT205-40L	1SFN124803R2000	2	0.290
AF265 ... AF370, with cable clamps	LT370-40C	1SFN125401R2000	2	0.040
AF265 ... AF370, with compression lugs	LT370-40L	1SFN125403R2000	2	0.370

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For contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce)
	hole Ø mm	bar mm				
						kg

Terminal enlargements

AF190 ... AF205	10.5	20 x 5	LW205-40	1SFN074807R2000	1	0.306
AF265 ... AF370	10.5	25 x 5	LW370-40	1SFN075407R2000	1	0.540

(1) For more information, refer to "Accessories" section.

1SFC101208C0201

AF09 ... AF80 4-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1						
Rated operational voltage U_e max.		690 V						
Rated frequency (without derating)		50 / 60 Hz						
Conventional free-air thermal current I_{th}								
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		35 A	35 A	55 A	55 A	105 A	105 A	125 A
With conductor cross-sectional area		6 mm ²	6 mm ²	16 mm ²	16 mm ²	35 mm ²	35 mm ²	50 mm ²
AC-1 Utilization category								
For air temperature close to contactor								
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	25 A	30 A	45 A	55 A	70 A	100 A	125 A
U _e max. $\leq 690\text{ V}$, 50/60 Hz	$\theta \leq 60^\circ\text{C}$	25 A	30 A	40 A	45 A	60 A	80 A	105 A
	$\theta \leq 70^\circ\text{C}$	22 A	26 A	32 A	37 A	50 A	70 A	90 A
With conductor cross-sectional area		4 mm ²	6 mm ²	10 mm ²	16 mm ²	35 mm ²	35 mm ²	50 mm ²
AC-3 Utilization category								
For air temperature close to contactor $\theta \leq 60^\circ\text{C}$								
I_e / Max. rated operational current AC-3 (1)								
	220-230-240 V	9 A	18 A	23.2 A	23.2 A	40 A	53 A	80 A
	380-400 V	9 A	18 A	22 A	22 A	40 A	53 A	80 A
	415 V	9 A	18 A	21.2 A	21.2 A	40 A	53 A	80 A
	440 V	9 A	18 A	20 A	20 A	40 A	53 A	80 A
	500 V	9.5 A	15 A	17.6 A	17.6 A	35 A	45 A	65 A
	690 V	7 A	10.5 A	10.5 A	10.5 A	25 A	35 A	49 A
Rated operational power AC-3 (1)								
	220-230-240 V	2.2 kW	4 kW	5.5 kW	5.5 kW	11 kW	15 kW	22 kW
	380-400 V	4 kW	7.5 kW	11 kW (3)	11 kW (3)	18.5 kW	22 kW	37 kW
	415 V	4 kW	9 kW	11 kW	11 kW	22 kW	30 kW	45 kW
	440 V	4 kW	9 kW	11 kW	11 kW	22 kW	30 kW	45 kW
	500 V	5.5 kW	9 kW	11 kW	11 kW	22 kW	30 kW	45 kW
	690 V	5.5 kW	9 kW	9 kW	9 kW	22 kW	30 kW	45 kW
Rated making capacity AC-3		10 x I _e AC-3 acc. to IEC 60947-4-1						
Rated breaking capacity AC-3		8 x I _e AC-3 acc. to IEC 60947-4-1						
Short-circuit protection device for contactors								
Without thermal overload relay - Motor protection excluded								
U _e $\leq 500\text{ V AC}$ - gG type fuse		25 A	32 A	50 A	63 A	80 A	110 A	160 A
Rated short-time withstand current I_{cw}								
At 40 °C ambient temperature, in free air from a cold state								
	1 s	300 A	300 A	450 A	450 A	1000 A	1000 A	1200 A
	10 s	150 A	150 A	300 A	300 A	600 A	600 A	780 A
	30 s	80 A	80 A	225 A	225 A	350 A	350 A	450 A
	1 min	60 A	60 A	150 A	150 A	250 A	250 A	300 A
	15 min	35 A	35 A	55 A	55 A	110 A	110 A	140 A
Maximum breaking capacity N.O. main pole								
cos $\phi = 0.45$								
	at 440 V	250 A	250 A	-	-	950 A	950 A	1100 A
	at 690 V	106 A	106 A	-	-	600 A	600 A	750 A
	N.C. Main pole	-	-	-	-	600 A	-	900 A
	at 690 V	-	-	-	-	300 A	-	750 A
Power dissipation per pole								
	I _e / AC-1	0.8 W	1.2 W	1.6 W	2.3 W	3 W	6.3 W	8 W
	I _e / AC-3	0.1 W	0.35 W	0.42 W	0.42 W	1 W	1.7 W	3.2 W
Max. electrical switching frequency	AC-1	600 cycles/h						

(1) For the corresponding kW/A values of 1500 r.p.m. 50 Hz or 1800 r.p.m. 60 Hz, 3-phase motors, see "Motor Rated Operational Powers and Currents"

(2) For the protection of motor starters against short circuits, see "Coordination with Short-circuit Protection Devices".

(3) 400 V 3-phase motors only.

Main pole - Utilization characteristics according to UL / CSA

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80	
Standards		UL 508, CSA C22.2 N°14					UL 60947-4-1, CSA-C22.2 No. 60947-4-1		
Max. operational voltage		600 V							
UL / CSA general use rating									
600 V AC		25 A	30 A	45 A	55 A	60 A	80 A	105 A	
With conductor cross-sectional area		AWG 10	AWG 10	AWG 8	AWG 6	AWG 6	AWG 4	AWG 2	
Max. electrical switching frequency									
For general use		600 cycles/h							

Note: 4-pole contactors fitted with 2 N.O. + 2 N.C. main poles, see "General technical data".



3-phase motors



1500 r.p.m. 50 Hz
1800 r.p.m. 60 Hz
3-phase motors

AF116 ... AF370 4-pole contactors

Technical data

Main pole - Utilization characteristics according to IEC

Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000	
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1									
Rated operational voltage U_e max.		690 V			1000 V						
Rated frequency (without derating)		50 / 60 Hz									
Conventional free-air thermal current I_{th} acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$ With conductor cross-sectional area		160 A	200 A	275 A	350 A	400 A	500 A	525 A	800 A	1000 A	
		70 mm ²	95 mm ²	150 mm ²	240 mm ² (3)	240 mm ²	300 mm ² (4)	2x 185 mm ² (4)	2x 240 mm ²	2x 300 mm ²	
AC-1 Utilization category For air temperature close to contactor											
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	160 A	200 A	275 A	350 A	400 A	500 A	525 A	800 A	1000 A	
U _e max. $\leq 690\text{ V}, 50/60\text{ Hz}$	$\theta \leq 60^\circ\text{C}$	145 A	175 A	250 A	300 A	350 A	400 A	425 A	650 A	800 A	
	$\theta \leq 70^\circ\text{C}$	130 A	160 A	200 A	240 A	290 A	325 A	350 A	575 A	720 A	
U _e max. $\leq 1000\text{ V}, 50/60\text{ Hz}$	$\theta \leq 40^\circ\text{C}$	-	-	250 A	275 A	350 A	375 A	400 A	800 A	1000 A	
	$\theta \leq 60^\circ\text{C}$ (2)	-	-	225 A	250 A	300 A	325 A	350 A	650 A	800 A	
	$\theta \leq 70^\circ\text{C}$	-	-	185 A	200 A	240 A	260 A	290 A	575 A	720 A	
With conductor cross-sectional area		70 mm ²	95 mm ²	150 mm ²	240 mm ² (3)	240 mm ²	300 mm ² (4)	2x 185 mm ² (4)	2x 240 mm ²	2x 300 mm ²	
AC-3 Utilization category For air temperature close to contactor $\theta \leq 60^\circ\text{C}$ (2)											
I_e / Max. rated operational current AC-3 (1)											
	220-230-240 V	116 A	140 A	190 A	205 A	265 A	305 A	370 A	550 A	-	
	380-400 V	116 A	140 A	190 A	205 A	265 A	305 A	370 A	550 A	-	
	415 V	116 A	140 A	190 A	205 A	265 A	305 A	370 A	550 A	-	
	440 V	116 A	140 A	190 A	205 A	265 A	305 A	370 A	550 A	-	
	500 V	-	-	-	-	-	-	-	550 A	-	
	690 V	-	-	-	-	-	-	-	550 A	-	
	1000 V	-	-	-	-	-	-	-	175 A	-	
Rated operational power AC-3 (1)											
	220-230-240 V	30 kW	37 kW	55 kW	55 kW	75 kW	90 kW	110 kW	160 kW	-	
	380-400 V	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW	280 kW	-	
	415 V	55 kW	75 kW	90 kW	110 kW	132 kW	160 kW	200 kW	315 kW	-	
	440 V	75 kW	90 kW	110 kW	132 kW	160 kW	160 kW	200 kW	315 kW	-	
	500 V	-	-	-	-	-	-	-	400 kW	-	
	690 V	-	-	-	-	-	-	-	500 kW	-	
	1000 V	-	-	-	-	-	-	-	250 kW	-	
Rated making capacity AC-3		10 x I _e AC-3 acc. to IEC 60947-4-1									
Rated breaking capacity AC-3		8 x I _e AC-3 acc. to IEC 60947-4-1									
Short-circuit protection device for contactors Without thermal overload relay - Motor protection excluded U _e $\leq 500\text{ V AC}$ - gG type fuse		200 A	250 A	355 A	400 A	630 A	630 A	630 A	800 A	1000 A	
Rated short-time withstand current I_{sw} At 40 °C ambient temperature, in free air from a cold state	1 s	1300 A	1460 A	1900 A	2050 A	2650 A	3050 A	3700 A	5500 A	6800 A	
	10 s	928 A	1168 A	1520 A	1640 A	2120 A	2440 A	2960 A	5300 A	6400 A	
	30 s	536 A	674 A	878 A	947 A	1224 A	1409 A	1709 A	3700 A	4400 A	
	1 min	379 A	477 A	621 A	670 A	865 A	996 A	1208 A	3000 A	3400 A	
	15 min	160 A	200 A	275 A	350 A	400 A	500 A	525 A	1000 A	1200 A	
Maximum breaking capacity cos $\phi = 0.45$	at 440 V	2000 A	3000 A	3300 A	3500 A	3800 A	4600 A	5000 A	5400 A	-	
	at 690 V	-	-	-	-	-	-	-	5400 A	-	
Power dissipation per pole	I _e / AC-1	12 W	18 W	15 W	25 W	32 W	50 W	72 W	60 W	80 W	
	I _e / AC-3	-	-	-	-	-	-	-	25 W	-	
Max. electrical switching frequency	AC-1	300 cycles/h									
	AC-3	300 cycles/h									
	AC-2, AC4								120 cycles/h		-



3-phase motors



1500 r.p.m. 50 Hz
1800 r.p.m. 60 Hz
3-phase motors

(1) For the corresponding kW/A or hp/A values of 1500 r.p.m, 50 Hz or 1800 r.p.m, 60 Hz, 3-phase motors, see "Motor rated operational powers and currents".
 (2) $\theta \leq 55^\circ\text{C}$ for EK550, EK1000
 (3) For currents above 275 A use terminal enlargements or terminal extensions.
 (4) For currents above 450 A use terminal enlargements or terminal extensions.

Main pole - Utilization characteristics according to UL / CSA

Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
Standards		UL 60947-4-1							UL 508, CSA C22.2 N°14	
Max. operational voltage		600 V								
UL / CSA general use rating										
600 V AC		160 A	175 A	230 A	250 A	300 A	350 A	420 A	540 A	-
With conductor cross-sectional area		AWG 2/0	AWG 3/0	MCM 250	MCM 250	MCM 400	MCM 500	2/MCM 300	-	-
Max. electrical switching frequency For general use		300 cycles/h								

AF09 ... AF80 4-pole contactors

Technical data

Main pole - Utilization characteristics according to UL/NEMA/CSA

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80
Standards		UL 508, CSA C22.2 N°14				UL 60947-4-1, CSA-C22.2 No. 60947-4-1		
Max. operational voltage		600 V						
UL / CSA general use rating								
	600 V AC	25 A	30 A	45 A	55 A	60 A	80 A	105 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 8	AWG 6	AWG 6	AWG 4	AWG 2
1 pole	80 V DC	25 A (1)	30 A (1)	45 A	55 A	60 A	80 A	105 A
2 poles in serie	160 V DC	25 A (1)	30 A (1)	45 A	55 A	60 A	80 A	105 A
3 poles in serie	240 V DC	25 A	30 A	45 A	55 A	60 A	80 A	105 A
4 poles in serie	320 V DC	25 A	30 A	45 A	55 A	60 A	80 A	105 A
With conductor cross-sectional area		AWG 10	AWG 10	AWG 8	AWG 8	AWG 6	AWG 4	AWG 2
Max. electrical switching frequency		600 cycles/h						
For general use								

Note: 4-pole contactors fitted with 2 N.O. + 2 N.C. main poles, see "General technical data".
 (1) 20 A for AF09...22-00 and AF16...22-00.

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Main pole utilization characteristics - 4 N.O. non-reversing contactors

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80
Lighting application - UL / CSA - breaking all lines								
Electrical discharge lamps (ballast)								
1-phase per pole	347 V AC	20 A	30 A	45 A	50 A	-	-	-
3-phase break all lines	600 V AC	20 A	30 A	45 A	50 A	-	-	-
Elevator control, load switching, 500 000 electrical operating cycles acc. to CSA B44.1 / ASME 17.5 paragraph 19.2.1								
1-phase								
Horse power rating	110-120 V AC	-	1/2 hp	-	-	-	-	-
	220-240 V AC	-	1-1/2 hp	-	-	-	-	-
3-phase								
Horse power rating	200-208 V AC	-	3 hp	-	-	-	-	-
	220-240 V AC	-	3 hp	-	-	-	-	-
	440-480 V AC	-	7-1/2 hp	-	-	-	-	-
	550-600 V AC	-	10 hp	-	-	-	-	-

Note: 4-pole contactors fitted with 2 N.O. + 2 N.C. main poles, see "General technical data".

AF116 ... AF370 4-pole contactors

Technical data

Main pole - Utilization characteristics according to UL/NEMA/CSA

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
Standards		UL 60947-4-1								UL 508, CSA C22.2 N°14	
Max. operational voltage		600 V									
UL / CSA general use rating											
600 V AC		160 A	175 A	-	230 A	250 A	300 A	350 A	420 A	540 A	-
With conductor cross-sectional area		AWG 2/0	AWG 3/0	-	MCM 250	MCM 250	MCM 400	MCM 500	2//MCM 300	-	-
1 pole	90 V DC	200 A	200 A	-	-	-	-	-	-	-	-
	100 V DC	-	-	250 A	350 A	-	-	-	-	-	-
	110 V DC	-	-	-	-	400 A	500 A	520 A	-	-	-
2 poles in serie	175 V DC	200 A	200 A	-	-	-	-	-	-	-	-
	200 V DC	-	-	250 A	350 A	-	-	-	-	-	-
	225 V DC	-	-	-	-	400 A	500 A	520 A	-	-	-
3 poles in serie	260 V DC	200 A	200 A	-	-	-	-	-	-	-	-
	300 V DC	-	-	250 A	350 A	-	-	-	-	-	-
	340 V DC	-	-	-	-	400 A	500 A	520 A	-	-	-
4 poles in series	350 V DC	200 A	200 A	-	-	-	-	-	-	-	-
	400 V DC	-	-	250 A	350 A	-	-	-	-	-	-
	450 V DC	-	-	-	-	400 A	500 A	520 A	-	-	-
With conductor cross-sectional area		AWG 2/0	AWG 3/0	-	MCM 250	MCM 250	MCM 400	MCM 500	2//MCM 300	-	-
Max. electrical switching frequency											
For general use		300 cycles/h									

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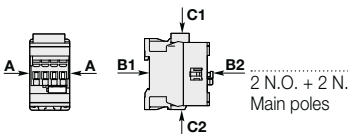
Main pole utilization characteristics - 4 N.O. non-reversing contactors

Contactor types	AC / DC operated	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
Lighting application - UL/CSA - breaking all lines											
Electrical discharge lamps (ballast)											
1-phase per pole	347 V AC	160 A	200 A	200 A	250 A	300 A	400 A	450 A	520 A	-	-
3-phase break all lines	600 V AC	160 A	200 A	200 A	250 A	300 A	400 A	450 A	520 A	-	-

AF09 ... AF80 4-pole contactors

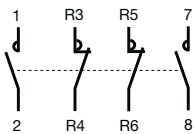
Technical data

General technical data

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80	
Rated insulation voltage U_i acc. to IEC 60947-4-1 acc. to UL / CSA		690 V						1000 V	
Rated impulse withstand voltage U_{imp}		600 V						8 kV	
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A				Devices complying with IEC 60947-1 / EN 60947-1 - Environments A and B			
Ambient air temperature close to contactor									
Operation		-40...+70 °C							
Storage		-60...+80 °C							
Climatic withstand		Category B according to IEC 60947-1 Annex Q							
Maximum operating altitude (without derating)		3000 m							
Mechanical durability									
Number of operating cycles		10 millions operating cycles							
Max. switching frequency		3600 cycles/h							
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27 Mounting position 1									
	Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position							
	4 N.O. Main poles	A	30 g					(1)	
		B1	25 g closed position / 5 g open position					(1)	
		B2	15 g					(1)	
		C1	25 g					(1)	
		C2	25 g					(1)	
	2 N.O. + 2 N.C. Main poles	A	30 g					(1)	
		B1	25 g closed position / 5 g open position					(1)	
		B2	15 g					(1)	
		C1	25 g					(1)	
		C2	25 g					(1)	
	Vibration withstand acc. to IEC 60068-2-6		5...300 Hz 4 g closed position / 2 g open position						

(1) On request

Remark for 4-pole contactors fitted with 2 N.O. + 2 N.C. main poles



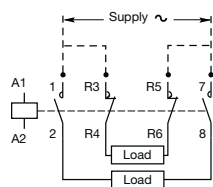
These contactors are suitable for controlling 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit comprising 2 separate loads with a single supply (see diagrams below). When the contactor operates there is no mechanical overlapping between the N.O. poles and the N.C. poles: BREAK before MAKE.



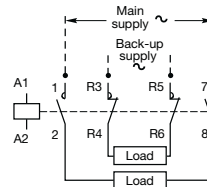
These contactors are not suitable for a reversing starter or for controlling a single load from 2 separate supplies.

Block diagrams

– Single supply and 2 separate loads



– 2 separate supplies and 2 separate loads

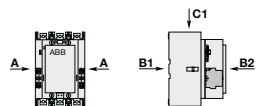


AF116 ... EK1000 4-pole contactors

Technical data

General technical data

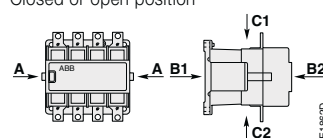
Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370
Rated insulation voltage Ui acc. to IEC 60947-4-1		1000 V						
acc. to UL / CSA		600 V						
Rated impulse withstand voltage Uimp.		8 kV						
Electromagnetic compatibility		AF contactors comply with IEC 60947-1 / EN 60947-1 - Environment A						
Ambient air temperature close to contactor								
Operation		-40 to +70 °C						
Storage		-40 to +70 °C						
Maximum operating altitude (without derating)		3000 m						
Mechanical durability								
Number of operating cycles		5 million operating cycles						
Maximum switching frequency		300 cycles/h						
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27 Mounting position 1		No change in contact position, closed or open position						
	Shock direction	1/2 sinusoidal shock for 11 ms		1/2 sinusoidal shock for 30 ms				
	A	20 g		20 g				
	B1	15 g closed position / 3 g open position		15 g closed position / 3 g open position				
	B2	15 g closed position / 3 g open position		15 g closed position / 3 g open position				
	C1	20 g		20 g				
	C2	20 g		20 g				
Vibration withstand acc to IEC 60068-2-6		0.7 g closed position / 0.7 g open position 13.2...100 Hz						



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General technical data

Contactor types	AC or DC operated	EK550	EK1000
Rated insulation voltage Ui acc. to IEC 60947-4-1		1000 V	
acc. to UL		600 V	
Rated impulse withstand voltage Uimp.		8 kV	
Electromagnetic compatibility		EK contactors complying with IEC 60947-1 / EN 60947-1 - Environment A	
Ambient air temperature close to contactor			
Operation Fitted with thermal overload relay		-25 to +55 °C	-
Without thermal overload relay		-40 to +70 °C	-
Storage		-50 to +70 °C	-
Climatic withstand		Category B acc. to IEC 60068-2-30	
Maximum operating altitude (without derating)		≤ 3000 m	
Mechanical durability			
Number of operating cycles		5 millions operating cycles	3 millions operating cycles
Max. switching frequency		60 cycles/h	
Shock withstand acc. to IEC 60068-2-27 and EN 60068-2-27 Mounting position 1 Closed or open position		1/2 sinusoidal shock for 15 ms: no change in contact position, closed or open position	
	Shock direction	1/2 sinusoidal shock for 15 ms: no change in contact position, closed or open position	
	A	10 g	
	B1	10 g	
	B2	10 g	
	C1	10 g	
	C2	10 g	



AF09 ... AF80 4-pole contactors

Technical data

Magnet system characteristics

Contactor types	AC / DC operated	AF09	AF16	AF26	AF38	AF40	AF52	AF80	
Coil operating limits acc. to IEC 60947-4-1	AC supply	At $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min...} 1.1 \times U_c \text{ max.}$ At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min...} U_c \text{ max.}$				at $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min ... } 1.1 \times U_c \text{ max}$			
	DC supply	At $\theta \leq 60^\circ\text{C}$ $0.85 \times U_c \text{ min...} 1.1 \times U_c \text{ max.}$ At $\theta \leq 70^\circ\text{C}$ (AF) $0.85 \times U_c \text{ min...} U_c \text{ max.}$ - (AF..Z) $0.85 \times U_c \text{ min...} 1.1 \times U_c \text{ max.}$				at $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min ... } 1.1 \times U_c \text{ max}$			
AC control voltage 50/60 Hz									
Rated control circuit voltage U_c		24...500 V AC							
Coil consumption	Average pull-in value	(AF) 50 VA - (AF..Z) 16 VA				40 VA			
	Average holding value	(AF) 2.2 VA / 2 W - (AF..Z) 1.7 VA / 1.5 W				4 VA / 2 W			
DC control voltage									
Rated control circuit voltage U_c		12...500 V DC						20...500 V DC	
Coil consumption	Average pull-in value	(AF) 50 W - (AF..Z) 12...16 W				40 W			
	Average holding value	(AF) 2 W - (AF..Z) 1.7 W				2 W			
PLC-output control		(AF..Z) $\geq 500 \text{ mA}$ 24 V DC							
Drop-out voltage		$\leq 60\%$ of $U_c \text{ min.}$						$\leq 60\%$ of $U_c \text{ min.}$	
Voltage sag immunity acc. to SEMI F47-0706		(AF..Z) conditions of use on request						conditions of use on request	
Dips withstand $-20^\circ\text{C} \leq \theta \leq +60^\circ\text{C}$		(AF..Z) 22 ms average for $U_c \geq 24 \text{ V}$ 50/60 Hz or $U_c \geq 20 \text{ V}$ DC						24 ms average	
Operating time									
Between coil energization and:	N.O. contact closing	40...95 ms				(1)			
	N.C. contact opening	38...90 ms				(1)			
Between coil de-energization and:	N.O. contact opening	11...95 ms				(1)			
	N.C. contact closing	13...98 ms				(1)			

(1) On request.

Mounting characteristics and conditions for use

Contactor types	AF09	AF16	AF26	AF38	AF40	AF52	AF80
Mounting positions							
Mounting distances	Max. add-on N.C. auxiliary contacts: see accessory fitting details for a 4-pole contactor AF09 ... AF80 The contactors can be assembled side by side						
Fixing							
On rail according to IEC 60715, EN 60715	35 x 7.5 mm or 35 x 15 mm				35 x 15 mm		
By screws (not supplied)	2 x M4 screws placed diagonally				2 x M4 or 2 x M6 screws placed diagonally		

AF116 ... AF370 4-pole contactors

Technical data

Magnet system characteristics

Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370
Coil operating limits acc. to IEC 60947-4-1	AC supply	At $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$						
	DC supply	At $\theta \leq 70^\circ\text{C}$ $0.80 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$						
Rated control circuit voltage U_c		24...500 V AC, 20...500 V DC						
Coil consumption								
AC control voltage 50/60 Hz								
24...60 V AC	Average pull-in value	225 VA		165 VA		475 VA		
	Average holding value	5.5 VA		6 VA		8.5 VA		
48...130 V AC	Average pull-in value	170 VA		175 VA		340 VA		
	Average holding value	4 VA		4 VA		17 VA		
100...250 V AC	Average pull-in value	130 VA		220 VA		385 VA		
	Average holding value	6 VA		7 VA		17.5 VA		
250...500 V AC	Average pull-in value	205 VA		185 VA		420 VA		
	Average holding value	16 VA		16 VA		21 VA		
DC control voltage								
20...60 V DC	Average pull-in value	210 W		205 W		400 W		
	Average holding value	2.5 W		2.5 W		3.5 W		
48...130 V DC	Average pull-in value	130 W		130 W		360 W		
	Average holding value	2.5 W		2.5 W		2.5 W		
100...250 V DC	Average pull-in value	135 W		190 W		410 W		
	Average holding value	3 W		2.5 W		4.5 W		
250...500 V DC	Average pull-in value	205 W		190 W		600 W		
	Average holding value	4 W		4 W		4.7 W		
Drop-out voltage		55 % of $U_c \text{ min}$						
Operating time								
Coil supply between A1 - A2								
	Between coil energization and: N.O. contact closing	20...55 ms		25...60 ms		30...60 ms		
Between coil de-energization and: N.O. contact opening	40...70 ms		45...80 ms		45...80 ms			

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
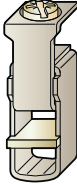
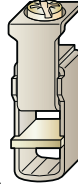
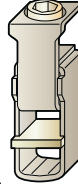









Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370
Mounting positions								
Mounting distances		Max. add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 4-pole contactor AF116 ... AF370						
Fixing		The contactors can be assembled side by side						
On rail acc. to IEC 60715, EN 60715		-						
By screws (not supplied)		4 x M5						

AF09 ... AF80 4-pole contactors

Technical data

Connecting characteristics

Contactor types	AF09	AF16	AF26	AF38	AF40	AF52	AF80
Main terminals							
	Screw terminals with cable clamp		Screw terminals with double connector 2 x (5.5 width x 6.8 depth)		Screw terminals with double connector 2 x (9.3 width x 7.9/10.3 depth)		Screw terminals with double connector 2 x (12.4 width x 9.3/11.1 depth)
Connection capacity (min. ... max.)							
Main conductors (poles)							
 Rigid Solid ($\leq 4 \text{ mm}^2$)	1 x	1...6 mm ²	1.5...16 mm ²		6...35 mm ²		6...70 mm ²
 Stranded ($\geq 6 \text{ mm}^2$)	2 x	1...6 mm ²	1.5...16 mm ²		6...35 mm ²		6...50 mm ²
 Flexible with non insulated ferrule	1 x	0.75...6 mm ²	1.5...16 mm ²		4...35 mm ²		6...50 mm ²
	2 x	0.75...6 mm ²	1.5...16 mm ²		4...35 mm ²		6...50 mm ²
 Flexible with insulated ferrule	1 x	0.75...4 mm ²	1.5...16 mm ²		4...35 mm ²		6...50 mm ²
	2 x	0.75...2.5 mm ²	1.5...16 mm ²		4...35 mm ²		6...50 mm ²
 Bars or lugs	L <	9.6 mm	-		9.2 mm		12.2 mm
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 16...10	AWG 16...6		AWG 10...2		AWG 6...1
Stripping length		10 mm	12 mm		16 mm		17 mm
Tightening torque		1.5 Nm / 13 lb.in	2.5 Nm / 22 lb.in		4 Nm / 35 lb.in		6 Nm / 53 lb.in
Auxiliary conductors							
(coil terminals)							
 Rigid solid	1 x	1...2.5 mm ²					
	2 x	1...2.5 mm ²					
 Flexible with non insulated ferrule	1 x	0.75...2.5 mm ²					
	2 x	0.75...2.5 mm ²					
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²					
	2 x	0.75...1.5 mm ²					
 Lugs	L <	8 mm					
Connection capacity acc. to UL/CSA	1 or 2 x	AWG 18...14					
Stripping length		10 mm					
Tightening torque		1.2 Nm / 11 lb.in					
Degree of protection							
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529							
Main terminals	IP20			IP10			
Coil terminals	IP20						
Screw terminals	Delivered in open position, screws of unused terminals must be tightened						
Main terminals		M3.5	M4.5		M6		M8
	Screwdriver type	Flat Ø 5.5 / Pozidriv 2			Flat Ø 6.5 / Pozidriv 2		hexagon socket (s = 4 mm)
Coil terminals		M3.5					
	Screwdriver type	Flat Ø 5.5 / Pozidriv 2					

AF116 ... AF370 4-pole contactors

Technical data

Connecting characteristics

Contactor types	AC / DC operated	AF116	AF140	AF190	AF205	AF265	AF305	AF370
Main terminals								
Flat type								
Connection capacity (min. ... max.)								
Main conductors (poles)								
	Cu cable - Stranded	1 x	10...95 mm ²		6...150 mm ²		16...300 mm ²	
	Clamp type		LD... included (1)		1SDA066917R1		1SDA055016R1	
	Tightening torque		8 Nm		14 Nm		25 Nm	
	Cu cable - Stranded	2 x	10...95 mm ²		50...120 mm ²		70...185 mm ²	
	Clamp type		LD... included (1)		1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4	
	Tightening torque		8 Nm		16 Nm		22 Nm	
	Al cable - Stranded	1 x	–		95...185 mm ²		185...240 mm ²	
	Clamp type		–		1SDA054988R1		1SDA055020R1	
	Tightening torque		–		31 Nm		43 Nm	
	Cu cable - Flexible	1 x	10...70 mm ²		6...120 mm ²		16...240 mm ²	
	Clamp type		LD... included (1)		1SDA066917R1		1SDA055016R1	
	Tightening torque		8 Nm		14 Nm		25 Nm	
	Cu cable - Flexible	2 x	10...70 mm ²		50...95 mm ²		70...185 mm ²	
	Clamp type		LD... included (1)		1SFN074709R1000, LZ185-2C/120		1SCA022194R0890, OZXB4	
	Tightening torque		8 Nm		16 Nm		22 Nm	
	Lugs	W ≤	22 mm (.866 in)		24 mm (.945 in)		32 mm (1.260 in)	
		Ø >	6 mm (.236 in)		8 mm (.315 in)		10 mm (.394 in)	
	Socket type		LL... included		LL... included		LL... included	
	Tightening torque		9 Nm / 80 lb.in		18 Nm / 160 lb.in		28 Nm / 248 lb.in	
Connection capacity acc. to UL / CSA		1 x	AWG 6...3/0		6...300 MCM		4...400 MCM	
	Clamp type		LD... included (1)		ATK185 (2)		ATK300 (2)	
	Tightening torque		8 Nm / 71 lb.in		34 Nm / 301 lb.in		42 Nm / 372 lb.in	
Connection capacity acc. to UL / CSA		2 x	AWG 6...3/0		–		4...500 MCM	
	Clamp type		LD... included (1)		–		ATK300/2 (2)	
	Tightening torque		8 Nm / 71 lb.in		–		42 Nm / 372 lb.in	
Auxiliary conductors								
(coil terminals)								
	Solid / stranded	1 x	1...4 mm ²					
		2 x	1...4 mm ²					
	Flexible	1 x	0.75...2.5 mm ²					
		2 x	0.75...2.5 mm ²					
	Flexible with non insulated ferrule	1 x	0.75...2.5 mm ²					
		2 x	0.75...2.5 mm ²					
	Flexible with insulated ferrule	1 x	0.75...2.5 mm ²					
		2 x	0.75...2.5 mm ²					
	Lugs	L <	8 mm					
		I >	3.5 mm					
Connection capacity acc. to UL / CSA		1 or 2 x	AWG 18...14					
Stripping length			9 mm					
Tightening torque			1.00 Nm / 9 lb.in					
Degree of protection								
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529								
Main terminals			IP00					
Coil terminals			IP20					
Screw terminals								
Main terminals			M6		M8		M10	
		Screwdriver type	Screws and bolts					
Coil terminals (delivered in open position)			M3.5					
		Screwdriver type	Flat Ø 5.5 mm / Pozidriv 2					

(1) LD... not included for AF116 ... AF146-30-..B.

(2) Available in North America only.