

Accessories for AF09 ... AF2850 3-pole contactors, AF09 ... AF370 4-pole contactors and NF contactor relays

3/258	Auxiliary contact blocks
3/272	Electronic timers
3/275	Interlocks
3/277	Impulse contact blocks
3/279	Interface relays
3/281	Mechanical latching units
3/283	Other accessories
3/286	Additional terminal blocks
3/287	Terminal shrouds
3/288	Connections
3/289	Terminal connecting strips and shorting bars
3/290	Connection accessories for starting solutions
3/291	Connection sets for star-delta starter
3/292	Connection accessories for starting solutions with Push-in Spring terminals
3/293	Connection bars
3/294	Adapter plates
3/295	Low Voltage Ride Through (LVRT) modules
3/296	Spare parts contactors



For direct product details information, use product type or order code, ex:

- www.abb.com/productdetails/AF09-30-10-13
- or www.abb.com/productdetails/1SBL137001R1310

Auxiliary contact blocks for AF09 ... AF96 contactors and NF contactor relays



CA4-10

1SBC10001V0014



CAL4-11

1SBC10007V0014



CA4-22E

1SBC10006V0014



CAT4-11E

1SBC10002V0014

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for standard industrial environments.

Types of auxiliary contact blocks for front mounting:

- CA4 1 or 4-pole block, with instantaneous N.O., N.C. contacts
- CC4 1-pole block, with N.O. leading contact or N.C. lagging contact
- CAT4 2-pole block, with instantaneous N.O. + N.C. contacts and A1 / A2 coil terminal connection on front face.

Select the 4-pole auxiliary contact blocks CA4-..E, CA4-..M, CA4-..U or CA4-..N type, according to the contactor or contactor relay type for compliance with the standard requirements (see "Terminal marking and positioning").

Types of auxiliary contact blocks for side mounting:

- CAL4 2-pole block, with instantaneous N.O. + N.C. contacts.

For clipping onto the right- and/or left-hand side of the contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

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

Front-mounted instantaneous auxiliary contact blocks

AF09 ... AF96	1 0	--	CA4-10	1SBN010110R1010	1	0.014
4-pole NF	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
AF09 ... AF16..-30-10	2 2	--	CA4-22M	1SBN010140R1122	1	0.055
	3 1	--	CA4-31M	1SBN010140R1131	1	0.055
	1 3	--	CA4-13M	1SBN010140R1113	1	0.055
	0 4	--	CA4-04M	1SBN010140R1104	1	0.055
AF26 ... AF96..-30-00	2 2	--	CA4-22E	1SBN010140R1022	1	0.055
AF09 ... AF80..-40-00	3 1	--	CA4-31E	1SBN010140R1031	1	0.055
AF09 ... AF80..-22-00	4 0	--	CA4-40E	1SBN010140R1040	1	0.055
AF26 ... AF96..-30-00	0 4	--	CA4-04E	1SBN010140R1004	1	0.055
AF09 ... AF16..-40-00						
AF40 ... AF80..-40-00						
AF09 ... AF16..-30-01	2 2	--	CA4-22U	1SBN010140R1322	1	0.055
	3 1	--	CA4-31U	1SBN010140R1331	1	0.055
	4 0	--	CA4-40U	1SBN010140R1340	1	0.055
4-pole NF	2 2	--	CA4-22N	1SBN010140R1222	1	0.055
	3 1	--	CA4-31N	1SBN010140R1231	1	0.055
	4 0	--	CA4-40N	1SBN010140R1240	1	0.055
	1 3	--	CA4-13N	1SBN010140R1213	1	0.055
NF..40E	0 4	--	CA4-04N	1SBN010140R1204	1	0.055

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

AF09 ... AF96	--	1 0	CC4-10	1SBN010111R1010	1	0.014
4-pole NF	--	0 1	CC4-01	1SBN010111R1001	1	0.014

Note: 1 max CC4-10 and 1 max CC4-01.

CC4-01 use: on each "Accessory fitting details" table, the allowed number of N.C. add-on and built-in contacts including CC4-01, is decreased by one.

Side-mounted instantaneous auxiliary contact blocks

AF09 ... AF96	1 1	--	CAL4-11	1SBN010120R1011	1	0.040
NF	1 1	--	CAL4-11-T	1SBN010120T1011	10	0.040

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

AF09 ... AF16..-30-10	1 1	--	CAT4-11M	1SBN010151R1111	1	0.040
AF26 ... AF65..-30-00	1 1	--	CAT4-11E	1SBN010151R1011	1	0.040
AF09 ... AF52..-40-00						
AF09 ... AF40..-22-00						
AF09 ... AF16..-30-01	1 1	--	CAT4-11U	1SBN010151R1311	1	0.040

For each contactor or contactor relay type, refer to "Accessory fitting details" table.

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC (coil 20) and 24 V DC (coil 30).

Auxiliary contact blocks for AF09 ... AF96 contactors and NF contactor relays

Technical data

Contact utilization characteristics according to IEC

Types	1-pole CA4, 1-pole CC4, 4-pole CA4, 2-pole CAT4, 2-pole CAL4	
Standards	IEC 60947-5-1 and EN 60947-5-1	
Rated insulation voltage U_i acc. to IEC 60947-5-1	690 V	
Rated impulse withstand voltage U_{imp}	6 kV	
Rated operational voltage U_e max.	24...690 V	
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$	16 A	
Rated frequency (without derating)	50/60 Hz	
I_e / Rated operational current AC-15 acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A
	220-240 V 50/60 Hz	4 A
	400-440 V 50/60 Hz	3 A
	500 V 50/60 Hz	2 A
	690 V 50/60 Hz	2 A
Making capacity acc. to IEC 60947-5-1	10 x I_e AC-15	
Breaking capacity acc. to IEC 60947-5-1	10 x I_e AC-15	
I_e / Rated operational current DC-13 acc. to IEC 60947-5-1	24 V DC	6 A / 144 W
	48 V DC	2.8 A / 134 W
	72 V DC	1 A / 72 W
	110 V DC	0.55 A / 60 W
	125 V DC	0.55 A / 69 W
	220 V DC	0.27 A / 60 W
	250 V DC	0.27 A / 68 W
	400 V DC	0.15 A / 60 W
	500 V DC	0.13 A / 65 W
	600 V DC	0.1 A / 60 W
Short-circuit protection device gG type fuse	10 A	
Conditional short-circuit current	1 kA	
Rated short-time withstand current I_{cw} $\theta = 40^\circ\text{C}$	for 1.0 s	100 A
	for 0.1 s	140 A
Minimum switching capacity	12 V / 3 mA	
with failure rate acc. to IEC 60947-5-4	10^{-7}	
Power dissipation per pole at 6 A	0.1 W	
Mechanical durability	Number of operating cycles	10 millions operating cycles
	Max. switching frequency	3600 cycles/h
Max. electrical switching frequency	AC-15	1200 cycles/h
	DC-13	900 cycles/h
Mechanically linked contacts acc. to annex L of IEC 60947-5-1	Additional N.O. or N.C. auxiliary contacts (CA4, CAL4, CAT4) are mechanically linked contacts	
Mirror contacts acc. to annex F of IEC 60947-4-1	Additional N.C. auxiliary contacts (CA4, CAL4, CAT4) are mirror contacts	

Contact utilization characteristics according to UL / CSA

Types	1-pole CA4, 1-pole CC4, 4-pole CA4, 2-pole CAT4, 2-pole CAL4	
Standards	UL 508, CSA C22.2 N°14	
Max. operational voltage	600 V AC, 600 V DC	
Pilot duty	A600, Q600	
AC thermal rated current	10 A	
AC maximum volt-ampere making	7200 VA	
AC maximum volt-ampere breaking	720 VA	
DC thermal rated current	2.5 A	
DC maximum volt-ampere making-breaking	69 VA	

Connecting characteristics

Types	1-pole CA4, 1-pole CC4, 4-pole CA4, 2-pole CAT4, 2-pole CAL4	
Connection capacity (min. ... max.)		
 Rigid solid	1 x	1...2.5 mm ²
 Flexible with non insulated ferrule	2 x	1...2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²
 Flexible with insulated ferrule	2 x	0.75...2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²
 Flexible with insulated ferrule	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	IP20	
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		
Screw terminals	Delivered in open position, screws of unused terminals must be tightened	
All terminals	M3.5	
Screwdriver type	Flat Ø 5.5 / Pozidriv 2	

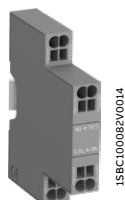
Auxiliary contact blocks with Push-in Spring terminals



CA4-10K



CA4-22EK



CAL4-11K

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for standard industrial environments.

Types of auxiliary contact blocks for front mounting:

- CA4..K 1 or 4-pole block, with instantaneous N.O., N.C. contacts

Select the 4-pole auxiliary contact blocks CA4-..EK, CA4-..MK or CA4-..NK type, according to the contactor or contactor relay type for compliance with the standard requirements (see "Terminal marking and positioning").

Types of auxiliary contact blocks for side mounting:

- CAL4..K 2-pole block, with instantaneous N.O. + N.C. contacts.

For clipping onto the right- and/or left-hand side of the contactors.

The auxiliary contact blocks are equipped with push-in spring terminals protected against accidental direct contact and bear the corresponding function marking.

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

Front-mounted instantaneous auxiliary contact blocks

AF09 ... AF96	1 0	CA4-10K	1SBN010160R1010	1	0.012
NF	1 0	CA4-10K-T	1SBN010160T1010	10	0.012
	0 1	CA4-01K	1SBN010160R1001	1	0.012
	0 1	CA4-01K-T	1SBN010160T1001	10	0.012
AF09 ... AF16..-30-10	2 2	CA4-22MK	1SBN010146R1122	1	0.050
	3 1	CA4-31MK	1SBN010146R1131	1	0.050
	1 3	CA4-13MK	1SBN010146R1113	1	0.050
	0 4	CA4-04MK	1SBN010146R1104	1	0.050
AF26 ... AF96..-30-00	2 2	CA4-22EK	1SBN010146R1022	1	0.050
AF09 ... AF80..-40-00	3 1	CA4-31EK	1SBN010146R1031	1	0.050
AF09 ... AF80..-22-00	4 0	CA4-40EK	1SBN010146R1040	1	0.050
4-pole NF	1 3	CA4-13NK	1SBN010146R1213	1	0.050
	2 2	CA4-22NK	1SBN010146R1222	1	0.050
	3 1	CA4-31NK	1SBN010146R1231	1	0.050
	4 0	CA4-40NK	1SBN010146R1240	1	0.050
NF40E	0 4	CA4-04NK	1SBN010146R1204	1	0.050

Side-mounted instantaneous auxiliary contact blocks

3-pole

AF09 ... AF96	1 1	CAL4-11K	1SBN010134R1011	1	0.030
NF					

Note: for each contactor or contactor relay type, refer to "Accessory fitting details" table.

Auxiliary contact blocks for AF09 ... AF96 contactors and NF contactor relays with Push-in Spring terminals

Technical data

Contact utilization characteristics according to IEC

Contactor relay types	1-pole CA4..K, 4-pole CA4..K, 2-pole CAL4..K	
Standards	IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1	
Rated insulation voltage U_i acc. to IEC 60947-5-1	690 V	
Rated impulse withstand voltage U_{imp}	6 kV	
Rated operational voltage U_e max.	690 V	
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$	16 A	
Rated frequency (without derating)	50 / 60 Hz	
I_e / Rated operational current AC-15 acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A
	220-240 V 50/60 Hz	4 A
	400-440 V 50/60 Hz	3 A
	500 V 50/60 Hz	2 A
	690 V 50/60 Hz	2 A
Making capacity acc. to IEC 60947-5-1	10 x I_e AC-15	
Breaking capacity acc. to IEC 60947-5-1	10 x I_e AC-15	
I_e / Rated operational current DC-13 acc. to IEC 60947-5-1	24 V DC	6 A / 144 W
	48 V DC	2.8 A / 134 W
	72 V DC	1 A / 72 W
	110 V DC	0.55 A / 60 W
	125 V DC	0.55 A / 69 W
	220 V DC	0.27 A / 60 W
	250 V DC	0.27 A / 68 W
	400 V DC	0.15 A / 60 W
	500 V DC	0.13 A / 65 W
	600 V DC	0.1 A / 60 W
Short-circuit protection device gG type fuse	10 A	
Conditional short-circuit current	1 kA	
Rated short-time withstand current I_{cw} $\theta = 40^\circ\text{C}$	for 1.0 s	100 A
	for 0.1 s	140 A
Minimum switching capacity with failure rate acc. to IEC 60947-5-4	12 V / 3 mA	
	10^{-7}	
Power dissipation per pole at 6 A	0.1 W	
Mechanical durability	Number of operating cycles	10 million operating cycles
	Max. switching frequency	3600 cycles/h
Max. electrical switching frequency	AC-15	1200 cycles/h
	DC-13	900 cycles/h
Mechanically linked contacts acc. to annex L of IEC 60947-5-1	Additional N.O. or N.C. auxiliary contacts (CA4, CAL4) are mechanically linked contacts.	
Mirror contacts acc. to annex F of IEC 60947-4-1	Additional N.C. auxiliary contacts (CA4, CAL4) are mirror contacts.	

Contact utilization characteristics according to UL / CSA

Standards	UL 508, CSA C22 N°14
Max. operational voltage	600 V AC, 600 V DC
Pilot duty	A600, Q600
AC thermal rated current	10 A
AC maximum volt-ampere making	7200 VA
AC maximum volt-ampere breaking	720 VA
DC thermal rated current	2.5 A
DC maximum volt-ampere making-breaking	69 VA

Connecting characteristics

Connection capacity (min. ... max.)	
 Rigid solid	1 x 1 ... 2.5 mm ²
 Rigid solid	2 x 1 ... 2.5 mm ²
 Flexible with ferrule	1 x 1 (push-in) / 0.5 (spring) ... 2.5 mm ²
 Flexible with ferrule	2 x 1 (push-in) / 0.5 (spring) ... 2.5 mm ²
 Flexible with insulated ferrule	1 x 1 (push-in) / 0.5 (spring) ... 1.5 mm ²
 Flexible with insulated ferrule	2 x 1 (push-in) / 0.5 (spring) ... 1.5 mm ²
 Flexible without ferrule	1 x (spring) 0.5 ... 2.5 mm ²
 Flexible without ferrule	2 x (spring) 0.5 ... 2.5 mm ²
Connection capacity acc. to UL/CSA	1 or 2 x AWG 18 ... 14
Stripping length	10 mm
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	IP20
Screwdriver type	Flat Ø 3 mm x 0.5 mm

Auxiliary contact blocks for severe industrial environments

for AF09 ... AF96 contactors and NF contactor relays



CE5-10W

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for severe industrial environments.

Types of auxiliary contact blocks for front mounting:

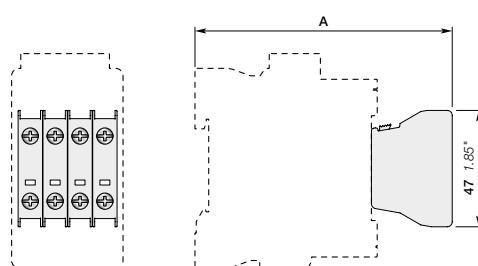
- CE5 1-pole block, instantaneous with N.O. contact or N.C. contact, available in 2 IP degrees
 - CE5 D with built-in microswitch IP40, degree of protection (IP20 on terminals)
 - CE5 W with built-in microswitch IP67, degree of protection (IP20 on terminals).

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

For contactors	Auxiliary contacts		Type	Order code	Pkg qty	Weight (1 pce)
						kg
AF09 ... AF96 NF	1 0	- -	CE5-10D0.1	1SBN010015R1010	1	0.020
	0 1	- -	CE5-01D0.1	1SBN010015R1001	1	0.020
	1 0	- -	CE5-10D2	1SBN010017R1010	1	0.020
	0 1	- -	CE5-01D2	1SBN010017R1001	1	0.020
	1 0	- -	CE5-10W0.1	1SBN010016R1010	1	0.020
	0 1	- -	CE5-01W0.1	1SBN010016R1001	1	0.020
	1 0	- -	CE5-10W2	1SBN010018R1010	1	0.020
	0 1	- -	CE5-01W2	1SBN010018R1001	1	0.020

(1) For each contactor type, refer to "Accessory fitting details" table.

Note: For use with 24 V DC operated AF..Z contactor and NFZ contactor relay (coil 30), please consult your ABB local sales organization.



Main dimensions mm, inches

1-pole CE5 on	A
AF09 ... AF16...-30-xx 1 stack	103.5 mm / 4.07"
AF09, AF16...-40/22-00	
NF..E 1-stack	
AF26 ... AF38...-30-00	112.5 mm / 4.43"
AF26, AF38...-40/22-00	127.5 mm / 5.02"
AF40 ... AF65-30-00	137 mm / 5.39"
AF40 ... AF65-40/22-00	140 mm / 5.51"
AF80 ... AF96-30-00	142 mm / 5.59"
AF80-40/22-00	142 mm / 5.59"

Auxiliary contact blocks for severe industrial environments

Technical data

Types	Front mounted	
	1-pole CE5-..0.1	1-pole CE5-..2

Contact utilization characteristics according to IEC

Standards	IEC 60947-5-1 and EN 60947-5-1	
Rated insulation voltage U_i acc. to IEC 60947-5-1	250 V	
Rated operational voltage U_e max.	125 V	250 V
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$	0.1 A	2 A
Rated frequency (without derating)	50 / 60 Hz	
I_e / Rated operational current acc. to IEC 60947-5-1	AC-14	AC-15
24-127 V 50/60 Hz	0.1 A	2 A
	220-240 V 50/60 Hz	2 A
Making capacity	6 x I_e AC-14 acc. to IEC 60947-5-1	10 x I_e AC-15 acc. to IEC 60947-5-1
Breaking capacity	6 x I_e AC-14 acc. to IEC 60947-5-1	10 x I_e AC-15 acc. to IEC 60947-5-1
I_e / Rated operational current DC-12 acc. to IEC 60947-5-1	24 V DC	0.1 A
24 V DC	48 V DC	0.1 A
	72 V DC	0.1 A
	110 V DC	0.1 A
	125 V DC	0.2 A
	220 V DC	0.1 A
	24 V DC	2 A
Short-circuit protection device FF type fuse (1)	0.1 A	10 A
Conditional short-circuit current	1 kA	1 kA
Minimum switching capacity		
AF09 ... AF38 contactors	3 V / 1 mA	17 V / 1 mA
with failure rate acc. to IEC 60947-5-4	-	$\leq 10^{-7}$
Mechanical durability		
Number of operating cycles	5 millions for CE5-..D0.1	5 millions for CE5-..D2
	2.5 millions for CE5-..W0.1	2.5 millions for CE5-..W2
Max. switching frequency	3600 cycles/h	
Electrical durability		
Number of operating cycles	2.5 millions for CE5-..D0.1	1 million for CE5-..D2
	0.7 millions for CE5-..W0.1	0.3 millions for CE5-..W2
Max. electrical switching frequency		
	AC-14	1200 cycles/h
	AC-15	1200 cycles/h
	DC-12	900 cycles/h

Contact utilization characteristics according to UL / CSA

Standards	UL 508, CSA C22.2 N°14	
Max. operational voltage	125 V AC / 110 V DC	250 V AC / 220 V DC
Pilot duty		
AC thermal rated current	0.1 A	2 A

Connecting characteristics

Connection capacity (min. ... max.)		
 Rigid solid	1 x	1...4 mm ²
	2 x	1...4 mm ²
 Flexible with ferrule	1 x	0.75...2.5 mm ²
	2 x	0.75...2.5 mm ²
 Lugs	L ≤	7.7 mm
	I >	3.7 mm
Connecting capacity acc. to UL / CSA	1 or 2 x	AWG 18...14
Stripping length	10 mm	
Tightening torque	1 Nm	
Degree of protection	Terminals	IP20
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	Microswitches	IP40 for CE5-..D0.1
		IP67 for CE5-..W0.1
Screw terminals	Delivered in open position, screws of unused terminals must be tightened	
All terminals	M3.5	
Screwdriver type	Flat Ø 5.5 / Pozidriv 2	

(1) HRC fuses for very fast action (6.3 x 32 mm size).

Auxiliary contact blocks for severe industrial environments

For AF09 ... AF96 3-pole contactors and AF09 ... AF80 4-pole contactors

For AF contactors

Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

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		Electrical and mechanical interlock set (Between 2 contactors) VEM4	Auxiliary contact blocks	
			1-pole CE5	1-pole CA4		Left side 2-pole CAL4-11	Right side

3-pole contactors AF09 ... AF96

On positions 1, 2, 3, 4; Max. N.C. built-in and add-on N.C. auxiliary contacts (CA4, CAL4, VEM4): 2 max. with 1 CE5, none with 2 CE5

AF09 ... AF16	3	0	0	1	1	+ 3 max.	-	+ 1	-
AF09 ... AF16	3	0	1	0	2	+ 2 max.	-	-	-
AF26 ... AF38	3	0	0	0	1	+ 3 max.	-	+ 1	-
					1	+ 1 max.	-	+ 1	+ 1
					1	+ 2 max.	+ 1	+ 1	-

On positions 1 ±30°, 5; Max. N.C. built-in or add-on N.C. auxiliary contacts (CA4, CAL4, VEM4): 1 max. with 1 CE5

AF09 ... AF16	3	0	0	1	1	+ 3 max.	-	-	-
AF09 ... AF16	3	0	1	0	1	+ 3 max.	-	+ 1	-
AF26 ... AF38	3	0	0	0	1	+ 2 max.	+ 1	-	-

On positions 1, 1 ±30°, 2, 3, 4, 5; Max. add-on N.C. auxiliary contacts (CA4, CAL4): 4 max. with 1 CE5, 2 max. with 2 CE5

AF40 ... AF96	3	0	0	0	2	+ 2 max.	-	+ 1	+ 1
					1	+ 3 max.	-	+ 1	+ 1

4-pole contactors AF09 ... AF80

On positions 1, 2, 3, 4; Max. add-on N.C. auxiliary contacts (CA4, CAL4, VEM4): 2 max. with 1 CE5, none with 2 CE5

AF09, AF16	4	0	0	0	2	+ 2 max.	-	-	-
					1	+ 3 max.	-	+ 1	-
					1	+ 1 max.	-	+ 1	+ 1
					1	+ 2 max.	+ 1	+ 1	-

On positions 1, 2, 3, 4; Max. add-on N.C. auxiliary contacts (CA4, CAL4, VEM4): 1 max. with 1 CE5

AF26, AF38	4	0	0	0	1	+ 3 max.	-	+ 1	-
					1	+ 2 max.	+ 1	-	-
AF09 ... AF38	2	2	0	0	1	+ 3 max.	-	+ 1	-

On positions 1 ±30°, 5; Max. add-on N.C. auxiliary contacts (CA4, CAL4, VEM4): 1 max. with 1 CE5

AF09, AF16	4	0	0	0	1	+ 3 max.	-	+ 1	-
					1	+ 2 max.	+ 1	-	-

On positions 1 ±30°, 5; No add-on N.C. auxiliary contacts

AF26, AF38	4	0	0	0	1	+ 3 max.	-	-	-
AF09 ... AF38	2	2	0	0					

On positions 1, 1 ±30°, 2, 3, 4, 5; Max. add-on N.C. auxiliary contacts (CA4, CAL4): 4 max. with 1 CE5, 2 max. with 2 CE5

AF40 ... AF80	4	0	0	0	2	+ 2 max.	-	+ 1	+ 1
					1	+ 3 max.	-	+ 1	+ 1

On positions 1, 1 ±30°, 2, 3, 4, 5; No add-on N.C. auxiliary contacts

AF40, AF80	2	2	0	0	1	+ 3 max.	-	-	-
------------	---	---	---	---	---	----------	---	---	---

Auxiliary contact blocks for severe industrial environments

For NF contactor relays

Main accessory fitting details - for ordering details, technical data and other accessories: see section accessories

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

Contactor relay types	Main poles 		Front-mounted accessories			Side-mounted accessories	
			Auxiliary contact blocks			Auxiliary contact blocks	
			1-pole CE5	1-pole CA4		Left side	Right side
						2-pole CAL4-11	
On positions 1, 2, 3, 4 ; Max. add-on N.C. auxiliary contacts (CA4, CAL4): 1 max. with 1 CE5							
NF	2 2 3 1	E E	1	+ 3 max.	-	+ 1	-
On positions 1, 2, 3, 4 ; Max. add-on N.C. auxiliary contacts (CA4, CAL4): 2 max. with 1 CE5, none with 2 CE5							
NF	4 0	E	2	+ 2 max.	-	-	-
			1	+ 3 max.	-	+ 1	-
			1	+ 1 max.	-	+ 1	+ 1
On positions 1 ±30°, 5 ; Max. add-on N.C. auxiliary contacts (CA4): none with 1 CE5							
NF	2 2 3 1	E E	1	+ 3 max.	-	-	-
On positions 1 ±30°, 5 ; Max. add-on N.C. auxiliary contacts (CA4, CAL4): 1 max. with 1 CE5							
NF	4 0	E	1	+ 3 max.	-	+ 1	-

Auxiliary contact blocks for AF116 ... AF2850 contactors



CAL19-11



CAL18-11

The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits for standard industrial environments.

Types of auxiliary contact blocks for side mounting:

- CAL 2-pole block, with instantaneous N.O. + N.C. contacts.

For clipping onto the right- and/or left-hand side of the contactors.

The CAL ...-11B is a second block for mounting in addition to a first CAL ...-11 block, right- and/or left-hand of the AF116 ... AF2850 contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

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	1	0.040
	1 1	CAL19-11B	1SFN010820R3311	1	0.040
AF400 ... AF2850	1 1	CAL18-11	1SFN010720R1011	2	0.050
	1 1	CAL18-11B	1SFN010720R3311	2	0.050

For each contactor type, refer to "Accessory fitting details" table.

Auxiliary contact blocks for AF116 ... AF2850 contactors

Technical data

Types	CAL18		CAL19
Contact utilization characteristics according to IEC			
Standards		IEC 60947-5-1 and EN 60947-5-1	
Rated insulation voltage U_i acc. to IEC 60947-5-1		690 V	
Rated impulse withstand voltage U_{imp} .		6 kV	
Rated operational voltage U_e max.		24...690 V AC	
Conventional thermal current I_{th} - $\theta \leq 40\text{ }^{\circ}\text{C}$		16 A	
Rated frequency (without derating)		50/60 Hz	
Ie / Rated operational current AC-15 acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A	
	220-240 V 50/60 Hz	4 A	
	380-440 V 50/60 Hz	3 A	
	500-690 V 50/60 Hz	2 A	
Making capacity acc. to IEC 60947-5-1		10 x Ie AC-15	
Breaking capacity acc. to IEC 60947-5-1		10 x Ie AC-15	
Ie / Rated operational current DC-13 acc. to IEC 60947-5-1	24 V DC	6 A / 144 W	3 A / 72 W
	48 V DC	2.8 A / 134 W	1.5 A / 72 W
	72 V DC	1 A / 72 W	1 A / 72 W
	110 V DC	0.55 A / 60 W	0.55 A / 60 W
	125 V DC	0.55 A / 69 W	0.55 A / 69 W
	220 V DC	0.3 A / 66 W	0.3 A / 69 W
	250 V DC	0.3 A / 75 W	0.3 A / 75 W
	Short-circuit protection device gG type fuse		10 A
Rated short-time withstand current Icw $\theta = 40\text{ }^{\circ}\text{C}$	for 1.0 s	100 A	
	for 0.1 s	140 A	
Minimum switching capacity with failure rate acc. to IEC 60947-5-4		24 V / 50 mA (0.5 million of operating cycles)	24 V / 50 mA
Power dissipation per pole at 6 A		$\leq 10\text{-}6$ 0.15 W	
Mechanical durability	Number of operating cycles	3 millions (A/AF400 ... AF750)	
		0.5 million (AF1250 ... AF2050)	5 millions operating cycles
	Max. switching frequency	3600 cycles/h 300 cycles/h	
Max. electrical switching frequency	AC-15	1200 cycles/h	300 cycles/h
	DC-13	900 cycles/h	300 cycles/h
Mirror contacts acc. to annex F of IEC 60947-4-1		N.C. auxiliary contacts are mirror contacts (1)	

(1) CAL19: for 3-pole contactors only.

Contact utilization characteristics according to UL / CSA

Standards	UL 508, CSA C22.2 N°14
Max. operational voltage	600 V AC, 250 V DC
Pilot duty	A600, Q300
AC thermal rated current	10 A
AC maximum volt-ampere making	7200 VA
AC maximum volt-ampere breaking	720 VA
DC thermal rated current	2.5 A
DC maximum volt-ampere making-breaking	69 VA

Connecting characteristics

Connection capacity (min. ... max.)	
 Solid / stranded	1 x 1...4 mm ²
 Flexible with non insulated ferrule	2 x 1...4 mm ²
 Flexible with non insulated ferrule	1 x 0.75...2.5 mm ²
 Flexible with non insulated ferrule	2 x 0.75...2.5 mm ²
 Flexible with insulated ferrule	1 x 0.75...2.5 mm ²
 Flexible with insulated ferrule	2 x 0.75...2.5 mm ²
 Lugs	L $\leq$ 8 mm
	L $>$ 3.7 mm
Connection capacity acc. to UL/CSA	1 or 2 x AWG18...14
Stripping length	9 mm
Tightening torque	1 Nm
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	IP20
Screw terminals	Delivered in open position, screws of unused terminals must be tightened
All terminals	M3.5
Screwdriver type	Flat Ø 5.5 / Pozidriv 2

Auxiliary contact blocks for AF116 ... AF2850 contactors
for severe industrial environments



CEL19

1SFC010124V0001



CEL18

1SFC010083V0001

The auxiliary contact blocks are used for the operation of auxiliary and control circuits for severe industrial environments.

Types of auxiliary contact blocks for side mounting:

- CEL 1-pole block, with built-in microswitch IP67 degree of protection (IP20 on terminals). Instantaneous N.O. or N.C. contact.

For clipping onto the right- and/or left-hand side of the contactors.

The auxiliary contact blocks are equipped with screw type connecting terminals delivered open, protected against accidental direct contact and bear the corresponding function marking.

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

Side-mounting instantaneous auxiliary contact blocks

AF116 ... AF370	1 0	CEL19-10	1SFN010832R1010	1	0.040
	0 1	CEL19-01	1SFN010832R1001	1	0.040
AF400 ... AF2850	1 0	CEL18-10	1SFN010716R1010	1	0.050
	0 1	CEL18-01	1SFN010716R1001	1	0.050

For each contactor type, refer to "Accessory fitting details" table.

Auxiliary contact blocks for AF116 ... AF2850 contactors for severe industrial environments

Technical data

Types		CEL18, CEL19
Contact utilization characteristics according to IEC		
Standards		IEC 60947-5-1 and EN 60947-5-1
Rated insulation voltage U_i acc. to IEC 60947-5-1		250 V
Rated operational voltage U_e max.		125 V
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$		0.1 A
I _e / Rated operational current AC-14 acc. to IEC 60947-5-1		24-127 V 50/60 Hz 0.1 A
Making capacity acc. to IEC 60947-5-1		6 x I _e AC-14
Breaking capacity acc. to IEC 60947-5-1		6 x I _e AC-14
I _e / Rated operational current DC-12 acc. to IEC 60947-5-1		24 V DC 0.1 A
		48 V DC 0.1 A
		72 V DC 0.1 A
		110 V DC 0.1 A
		220 V DC -
Short-circuit protection device		0.1 A (FF type fuses) (1)
Minimum switching capacity with failure rate acc. to IEC 60947-5-4		3 V / 1 mA
Mechanical durability	Number of operating cycles	1 million (2)
	Max. switching frequency	1200 cycles/h (2)
Electrical durability	Number of operating cycles	0.7 millions (2)
	Max. switching frequency	AC-14, AC15 1200 cycles/h (2)
		DC-12 900 cycles/h (2)
Mirror contacts acc. to annex F of IEC 60947-4-1		N.C. auxiliary contacts are mirror contacts
Contact utilization characteristics according to UL / CSA		
Standards		UL 508, CSA C22.2 N°14
Max. operational voltage		125 V
Pilot duty		
AC thermal rated current		0.1 A
Connecting characteristics		
Connection capacity (min. ... max.)		
 Rigid solid	1 x	1...4 mm ²
	2 x	1...4 mm ²
 Flexible with ferrule	1 x	0.75...2.5 mm ²
	2 x	0.75...2.5 mm ²
 Lugs	L ≤	7.7 mm
	I >	3.7 mm
Connection capacity acc. to UL/CSA		1 or 2 x AWG 18...14
Tightening torque		1 Nm
Degree of protection		Terminals IP20
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		Microswitches IP67
Screw terminals		Delivered in open position, screws of unused terminals must be tightened
All terminals		M3.5
Screwdriver type		Flat Ø 5.5 / Pozidriv 2

(1) or HRC fuses for very fast action (6.3 x 32 mm size).

(2) For CEL19, please consult us.

Auxiliary contact blocks for AF09 ... AF96 contactors and NF contactor relays

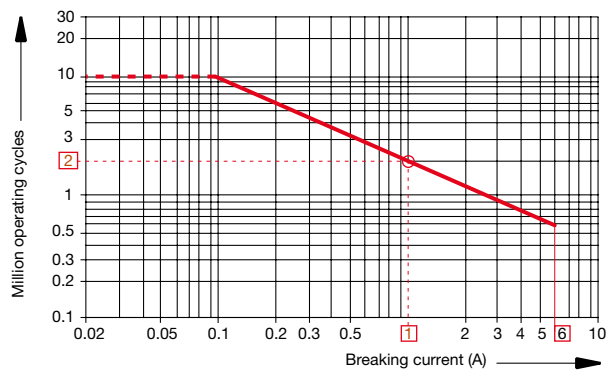
Electrical durability

Electrical durability for AC-15 utilization category

AC-15 utilization category according to IEC 60947-5-1 / EN 60947-5-1:

- making current: $10 \times I_e$ with $\cos \phi = 0.7$ and U_e
- breaking current: I_e with $\cos \phi = 0.4$ and U_e .

These curves represent the electrical durability of the built-in or add-on auxiliary contacts in relation to the breaking current. The curves have been drawn for resistive and inductive loads up to 690 V, 40...60 Hz.

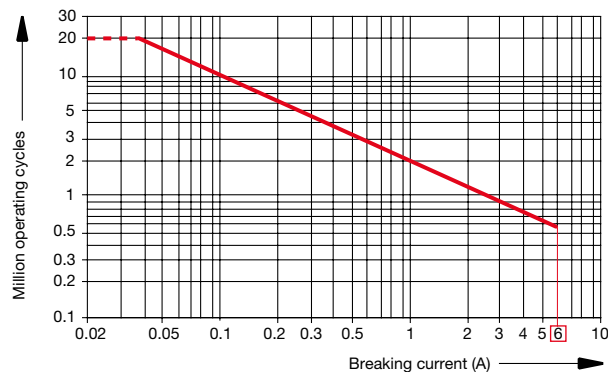


- AF09 ... AF96 contactor built-in auxiliary contacts
- 1-pole and 4-pole CA4, 2-pole CAT4, 1-pole CC4, 2-pole CAL4 add-on auxiliary contacts.

Example:

Breaking current = 1 A

On the opposite curve at intersection "O" 1 A the corresponding value for the electrical durability is approximately 2 millions operating cycles.

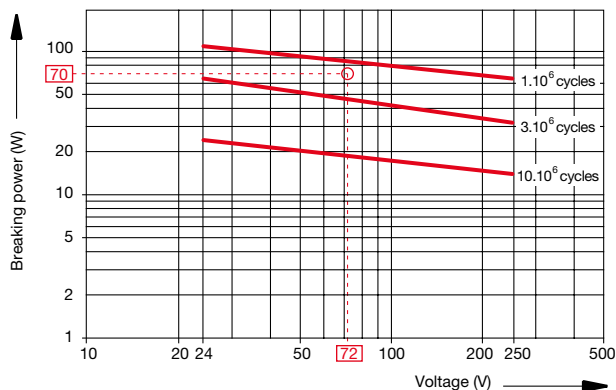


NF contactor relays.

(For add on auxiliary contacts see curve above).

Electrical durability for DC-13 utilization category

DC-13 utilization category according to IEC 60947-5-1 / EN 60947-5-1: making and breaking current I_e and U_e .



- AF09 ... AF96 contactor built-in auxiliary contacts 1-pole and 4-pole CA4, 2-pole CAT4, 1-pole CC4,
- 2-pole CAL4 add-on auxiliary contacts,
- NF contactor relays.

Example:

Control of DC electro-magnet:

U_e voltage = 72 V DC and breaking power = 70 W.

On the opposite curve at intersection "O" 72 V / 70 W the corresponding value for the electrical durability is approximately 2 millions operating cycles.

Auxiliary contact blocks for AF116 ... AF2850 contactors

Electrical durability

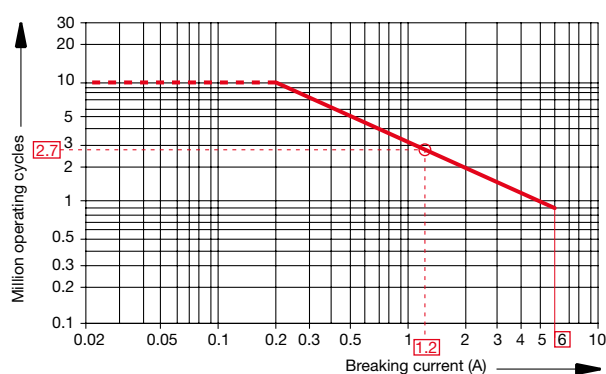
Electrical durability for AC-15 utilization category

AC-15 utilization category according to IEC 60947-5-1 / EN 60947-5-1:

- making current: $10 \times I_e$ with $\cos \phi = 0.7$ and U_e
- breaking current: I_e with $\cos \phi = 0.4$ and U_e .

These curves represent the electrical durability of the add-on auxiliary contacts, in relation to the breaking current.

The curves have been drawn for resistive and inductive loads up to 690 V, 40...60 Hz.



- AF116 ... AF2850 contactors auxiliary contacts
- 2-pole CAL18 and CAL19 add-on auxiliary contacts

Example:

Breaking current = 1.2 A

On the opposite curve at intersection "O" 1.2 A the corresponding value for the electrical durability is approximately 2.7 millions operating cycles.

Electronic timers



TEF4-ON



TEF4-OFF



TEF4S-ON



TEF4S-OFF

TEF4 frontal electronic timers are used for realizing timing function and are available in ON-delay and OFF-delay versions.

Compact solution in cabinet compared to separate timers

TEF4 electronic timers are front-mounted and locked on AF contactors or NF contactor relays. A mechanical indicator allows to show the state of the contactor.

Safe and cost-reduced wiring

TEF4 electronic timers are supplied by a direct plug-in parallel connection to the coil terminals A1 - A2 of the contactor or contactor relay. A varistor is integrated on the timer to offer a built-in protection against surges in the contactor coil.

Available for a wide control voltage range 24...240 V AC/DC

TEF4-ON or TEF4-OFF allow time-delayed functions up to 100 s in 3 distinct time ranges, independently of the control system. The time delay ranges are selected by a switch and the time delay can be adjusted by means of a rotary switch. The timing function is activated by closing or opening the device on which the timer is mounted. The OFF-delay version operates without additional control supply.

For contactors, contactor relays	Time delay range selected by switch	Delay type	Rated control circuit voltage Uc	Auxiliary contacts	Type	Order code	Weight Pkg (1 pce)
			V 50/60 Hz or DC				kg

With screw terminals

AF09 ... AF96	0.1...1 s	ON-delay	24...240	1 1	TEF4-ON	1SBN020112R1000	0.065
NF	1...10 s	OFF-delay	24...240	1 1	TEF4-OFF	1SBN020114R1000	0.065
	10...100 s						

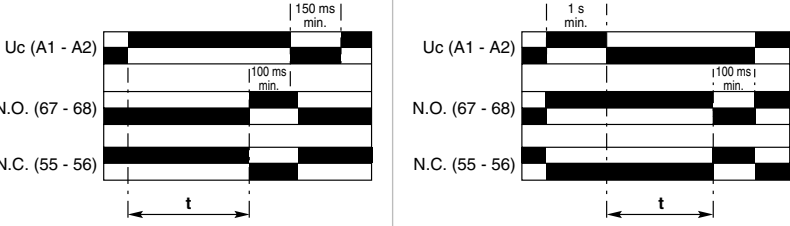
With spring terminals

AF09 ... AF96	0.1...1 s	ON-delay	24...240	1 1	TEF4S-ON	1SBN020113R1000	0.065
NF	1...10 s	OFF-delay	24...240	1 1	TEF4S-OFF	1SBN020115R1000	0.065
	10...100 s						

Electronic timers

Technical data

Contact utilization characteristics according to IEC

Types		TEF4-ON	TEF4-OFF
Standards		IEC 60947-5-1 and EN 60947-5-1	
Rated insulation voltage U_i acc. to IEC 60947-5-1		400 V	
Rated impulse withstand voltage U_{imp}		4 kV	
Rated operational voltage U_e max.		240V AC / 24 V DC	
Rated frequency (without derating)		50 / 60 Hz	
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$		5 A	
I _e / Rated operational current AC-15 acc. to IEC 60947-5-1	24-127 V 50/60 Hz	3 A	
	220-240 V 50/60 Hz	1.5 A	
Making capacity acc. to IEC 60947-5-1		10 x I _e AC-15	
Breaking capacity acc. to IEC 60947-5-1		10 x I _e AC-15	
I _e / Rated operational current DC-13 acc. to IEC 60947-5-1		24 V DC 1 A / 24 W	
Short-circuit protection device gG type fuse		10 A	
Conditional short-circuit current		1 kA	
Rated short-time withstand current I _{cw} $\theta = 40^\circ\text{C}$	for 1.0 s	8 A	
	for 0.1 s	8 A	
Minimum switching capacity		12 V / 3 mA	
with failure rate acc. to IEC 60947-5-4		24 V DC 10 ⁻⁷	
Power dissipation per pole at 3 A		0.1 W	
Function diagram		ON-delay	OFF-delay
			
		Bistable relay inside. Before use, once apply U_c then switch it off in order to initialize position of the contacts.	
Control circuit voltage			
AC control voltage 50/60 Hz	Rated control circuit voltage U_c	24...240 V AC	
	Average consumption	1.5 mA RMS	1 mA RMS
DC control voltage	Rated control circuit voltage U_c	24...240 V DC	
	Average consumption	1.5 mA	1 mA
Rated frequency limits		50 / 60 Hz	
Supply voltage range		0.85...1.1 x U_c (at $\theta \leq 70^\circ\text{C}$)	
Overvoltage protection		Varistor included	
Time delay range (t) selected by switch		0.1...1 s  1...10 s  10...100 s 	
On-load reiteration accuracy under constant conditions		$\leq 1\%$	
Minimum ON period		0.1 s	1 s
Recovery time		0.15 s	0.1 s
Ambient air temperature	Operation	-25 °C ... +70 °C	
	Storage	-40 °C ... +80 °C	
Climatic withstand		Category B according to IEC 60947-1 Annex Q	
Maximum operating altitude		2000 m	
Mounting positions		Mounting positions 1, 1 +/- 30°, 2, 3, 4, 5	
Shock withstand		1/2 sinusoidal shock for 11 ms: no change in contact position	
acc. to IEC 60068-2-27 and EN 60068-2-27 (Mounting position 1)		Same as contactor or contactor relay	
Vibration withstand		5...300 Hz	
acc. to IEC 60068-2-6		3 g closed position / 2 g open position	
Mechanical durability			
Number of operating cycles		5 millions operating cycles	
Max. switching frequency		3600 cycles/h	1800 cycles/h
Max. electrical switching frequency			
AC-15		1200 cycles/h	
DC-13		900 cycles/h	

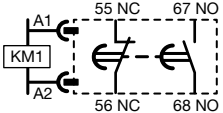
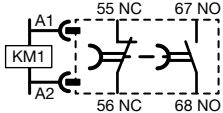
Electronic timers

Technical data

Contact utilization characteristics according to UL / CSA

Types	TEF4-ON	TEF4-OFF
Standards	UL 508, CSA C22.2 N°14	
Rated insulation voltage U_i acc. to UL / CSA	300 V	
Max. operational voltage	240 V	
Pilot duty	B300, R300	
AC thermal rated current	5 A	
AC maximum volt-ampere making	3600 VA	
AC maximum volt-ampere breaking	360 VA	
DC thermal rated current	1 A	
DC maximum volt-ampere making-breaking	28 VA	

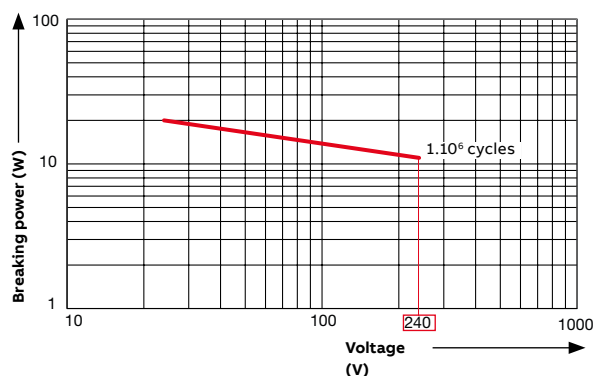
Connecting characteristics

Connection capacity (min. ... max.)		
 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 (0.75 ... 1.5 mm ² with spring terminals)
	2 x	0.75...1.5 mm ² (0.75 ... 1.5 mm ² with spring terminals)
 Lugs	L ≤	8 mm (1)
	L >	3.7 mm (1)
Connection capacity acc. to UL / CSA	1 or 2 x	AWG 18...14
Stripping length		10 mm
Tightening torque		1.2 N.m / 11 lb.in (1)
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP20
Screw terminals		Delivered in open position, screws of unused terminals should be tightened
All terminals		M3.5
Screwdriver type		Flat Ø 5.5 / Pozidriv 2
Spring terminals		
Screwdriver type		Ø 3.5
Terminal Marking		 

(1) Not applicable for TEF4S-ON and TEF4S-OFF with spring terminal Spring terminals)

Electrical durability for DC-13 utilization category

DC-13 utilization category according to IEC 60947-5-1 / EN 60947-5-1: making and breaking current I_e and U_e .



Interlocks



VM4

15BC100010V0014



VM19

15FC101035V0014

Mechanical interlock units

The VM mechanical interlock units are designed for the interlocking of two AF contactors. When mounted between two contactors, the VM mechanical interlock unit prevents one of the contactors from closing as long as the other contactor is closed.

The mechanical interlock units VM4 and VM96-4 include 2 fixing clips (BB4).

For contactors	Mounting	Type	Order code	Pkg qty	Weight (1 pce) kg
----------------	----------	------	------------	---------	----------------------

Mechanical interlock units for two contactors mounted side by side

AF09 ... AF38...-30-..		VM4	1SBN030105T1000	10	0.005
AF09 ... AF38...-40-00					
AF40 ... AF96-30-..		VM96-4	1SBN033405T1000	10	0.006
AF40 ... AF80-40-00					
For same size contactors:		VM19	1SFN030300R1000	1	0.054
AF116 ... AF146					
AF190, AF205					
AF265 ... AF370					
AF116 ... AF146 and		VM140/190	1SFN034403R1000	1	0.088
AF190, AF205					
AF190, AF205 and		VM205/265	1SFN035203R1000	1	0.090
AF265 ... AF370					
AF265 ... AF370 and		VM370/400	1SFN035403R1000	1	0.100
AF400 ... AF460					
AF400 ... AF1250	PN.. mounting plate to be ordered separately	VM750H	1SFN035700R1000	1	0.200
AF1350 ... AF2650	Plate included	VM1650H	1SFN036503R1001	1	6.000

Mechanical interlock units for two contactors mounted one above the other

AF400 ... AF1250	Additional plate (not supplied)	VM750V	1SFN035701R1000	1	0.200
------------------	---------------------------------	--------	-----------------	---	-------

Mechanical and electrical interlock sets

VEM4 mechanical and electrical interlock set for the interlocking of two AF contactors.

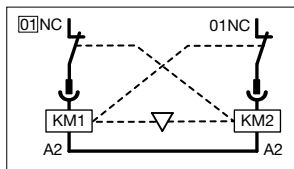
VEM4 set includes a mechanical interlock unit VM4 with 2 fixing clips (BB4) and a VE4 electrical interlock block with A2-A2 connection.

Fixing the electrical interlock block to the contactor front face connects the 2 built-in N.C. interlocking contacts with the two coils. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.



VEM4

15BC100011V0014



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

Mechanical and electrical interlock set

For same size contactors:	0 2	VEM4	1SBN030111R1000	1	0.035
AF09 ... AF16...-30-..					
AF26 ... AF38...-30-00					
AF09, AF16...-40-00					
AF26, AF38...-40-00					

Fixing clips

AF09 ... AF96	BB4	1SBN110120W1000	50	0.002
---------------	-----	-----------------	----	-------

Note: VEM4 not suitable for AF...Z contactors with DC control voltage 12...20 V DC (coil 20) and 24 V DC (coil 30).



BB4

15BC100013V0014

Interlocks

Technical data

Mechanical interlock unit

Types		VM4, VM96	VM19 ... VM750	VM1650H
Mechanical durability	Number of operating cycles	5 millions operating cycles	1 million operating cycles	500 000 operating cycles
	Max. mechanical switching frequency	1800 cycles/h	300 cycles/h	

Mechanical and electrical interlock set

Contact utilization characteristics according to IEC

Types		VEM4
Standards		IEC 60947-5-1 and EN 60947-5-1
Rated insulation voltage U_i acc. to IEC 60947-5-1		690 V
Rated impulse withstand voltage U_{imp} .		6 kV
Rated control circuit voltage U_c		
	AC 50/60 Hz control voltage	24...500 V AC
	DC control voltage	20...500 V DC
Conventional thermal current I_{th} - $\theta \leq 40^\circ\text{C}$		16 A
Mechanical durability	Number of operating cycles	5 millions operating cycles
	Max. mechanical switching frequency	1800 cycles/h
Electrical durability	Max. electrical switching frequency	1200 cycles/h

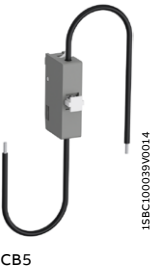
Contact utilization characteristics according to UL / CSA

Types		VEM4
Standards		UL 508, CSA C22.2 N°14
Max. operational voltage		500 V AC, 500 V DC

Connecting characteristics

Types		VEM4
Connection capacity (min. ... max.)		
 Rigid solid	1 x	1...2.5 mm ²
 Flexible with ferrule	2 x	1...2.5 mm ²
 Flexible with ferrule	1 x	0.75...2.5 mm ²
 Flexible with ferrule	2 x	0.75...2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75...2.5 mm ²
 Flexible with insulated ferrule	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		IP20
Screw terminals		Delivered in open position, screws of unused terminals must be tightened
All terminals		M3.5
Screwdriver type		Flat Ø 5.5 / Pozidriv 2

Impulse contact blocks

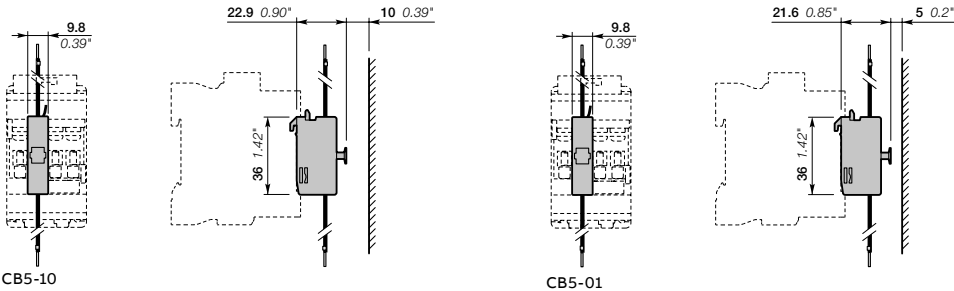


Impulse contact blocks are designed for use in enclosures, in association with an adjustable mechanical pushbutton. Two types are available:

- CB5-10: N.O. contact with a black actuator ("ON" function)
- CB5-01: N.C. contact with a light grey actuator ("OFF" function).

These blocks are equipped with 2 connecting leads 0.5 mm² with end, approximately 18 cm long. Mounting: Clipped onto the front face of the contactors.

For contactors	Contacts	Type	Order code	Pkg qty	Weight (1 pce)
					kg
AF09 ... AF96	1 -	CB5-10	1SBN010013R1010	1	0.012
	- 1	CB5-01	1SBN010013R1001	1	0.012



Main dimensions mm, inches

RA4 interface relays



RA4

RA4 interface relay is designed to receive 24 V DC signals delivered by PLC's or other sources with a low output power and to restore them with sufficient power to operate the coils of the relevant AF09 ... AF96 contactors or the NF contactor relays. RA4 interface relay is made up of a miniature electromechanical relay equipped with a N.O. contact and with a low consumption 24 V DC coil. The interface relay coil is controlled by the PLC while the N.O. contact ensures switching of the power contactor.

Coil switching gives rise to overvoltages which have adverse effects on the electronic devices, insulators and, more generally, on component lifetime. The RA4 is protected from surge thanks to the built-in surge protection of AF09 ... AF96. Furthermore, the RA4 is protected against relay pole reversal by a diode inserted between the E1 and E2 input terminals.

Connection

The "E1+" and "E2-" input terminals must be connected, according to their polarity, to the PLC-output.

The RA4 is equipped with two terminal pads for connection to the A1 and A2 terminals of the contactor coil.

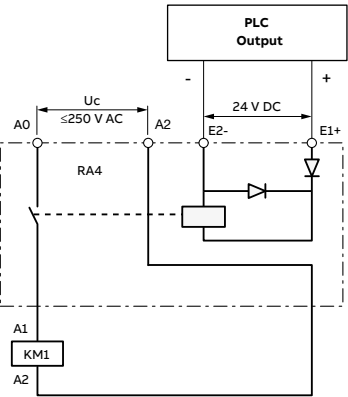
This coil is supplied between the A0 and A2 terminals of the RA4.

Mounting

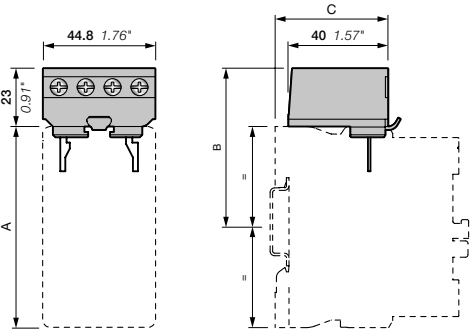
Remove the coil terminal block from the contactor and clip the interface relay without any screwing operation.

For contactors (1)	Coil voltages (2)	Rated control circuit voltage Uc	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF96 NF	V AC 50/60 Hz (4) 24 ... 250	V DC 24	RA4	15BN060100R1000	1	0.040

(1) LDC4 additional terminal blocks and CAT4 auxiliary contact blocks not suitable with RA4.
(2) Main use with contactor coils 41, 11, 12, 13.



Wiring diagram



RA4 mounted on	AF09 ... AF38	AF40 ... AF96
A	80 mm / 3.15"	119.5 mm / 4.70"
B	63 mm / 2.48"	83 mm / 3.27"
C	45 mm / 1.77"	40 mm / 1.57"

Main dimensions mm, inches

RA4 interface relays

Technical data

Utilization characteristics according to IEC

Type	RA4
Standards	IEC 60947 5-1
Rated insulation voltage U_i acc. to IEC 60947 5-1	250 V AC 50/60 Hz
Ambient air temperature	
In free air operation	at $U_c = 24$ V DC (between E1 and E2) from 0.85 to 1.1 x U_c
Storage	-25 ... +70 °C -25 ... +60 °C -40 ... +70 °C
Climatic withstand	Category B according to IEC 60947-1 Annex Q
Maximum operating altitude	≤3000 m
Mounting positions	Mounting positions 1, 1 ±30°, 2, 3, 4, 5

Connecting characteristics

Connection capacity (min. ... max.)	
 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	IP20 protection against direct contact in acc. with EN 50274
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	RA4 wired and mounted on the associated contactor
Screw terminals	Delivered in open position
All terminals	M3.5
Screwdriver type	Flat Ø 5.5 / Pozidriv 2

Working data

Surge suppression	
For interface relay coil	Included inside AF built-in surge protection
Protection against polarity reversal between terminals E1 and E2	Diode
Interface relay operating time	Closing and drop-out ≤10 ms
Total operating time	
interface relay + contactor (1)	
Between energization and:	N.O. contact closing 42 ... 95 ms (AF09 ... AF38, NF) 44 ... 105 ms (AF40 ... AF96)
	N.C. contact opening 40 ... 90 ms (AF09 ... AF38, NF) 40 ... 100 ms (AF40 ... AF96)
Between de-energization and:	N.O. contact opening 15 ... 57 ms (AF09 ... AF38, NF) 21 ... 107 ms (AF40 ... AF96)
	N.C. contact closing 17 ... 60 ms (AF09 ... AF38, NF) 23 ... 112 ms (AF40 ... AF96)

(1) For contactor coils 41, 11, 12, 13.

Electrical input data

Control voltage (E1 and E2 terminals) U_c	
Rated value	24 V DC
Max. range at ambient temperature 20 °C	19 ... 30 V DC
Max. consumption for $U_c = 24$ V DC, $\theta = 20$ °C	0.3 W
"0" status (relay open)	for U_c ≤2.4 V DC for I_c <1 mA
"1" status (relay closed)	for U_c ≥19 V DC
Max. short supply interruption immunity time	2 ms

Electrical output data

Switching voltage (A0 and A2 terminals)	≤250 V AC
Electrical durability	
Switching frequency	600 cycles/h
Number of operating cycles	2 million operating cycles

Mechanical latching unit



WA4

1SBC101058V0014

The WA4 mechanical latching unit for AF09 ... AF96 contactors and NF contactor relays ensures that the contactor or contactor relay remains switched on even if there is a lack or a failure of voltage. Standard contactors can be easily converted into compact latched contactors.

The WA4 block contains a mechanical latching device with electromagnetic impulse unlatching (AC or DC) or manual unlatching.

Operation

After closing, the contactor continues to be held in the closed position by the latching mechanism should the supply voltage fail at the contactor coil terminals.

Contactor opening can be controlled:

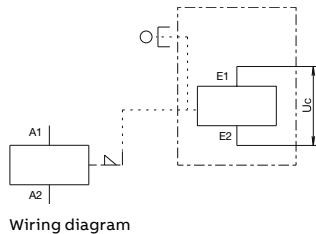
- electrically by an impulse (AC or DC) on the WA4 block coil (the coil is not designed to be permanently energized)
- manually by pressing the pushbutton on the front face of the WA4 block.

Mounting

The WA4 block is clipped onto the front face of the 1-stack contactor where it takes up two slots in central position (see fig. below).

The two other slots may accept CA4 single pole auxiliary contacts (1 block on each side of the mechanical latch).

Additional CAL4 can be fitted on the side of the contactor in respect to the total number of built-in or additional N.O. and N.C. auxiliary contacts as described in the accessory fitting details part of each contactor type.

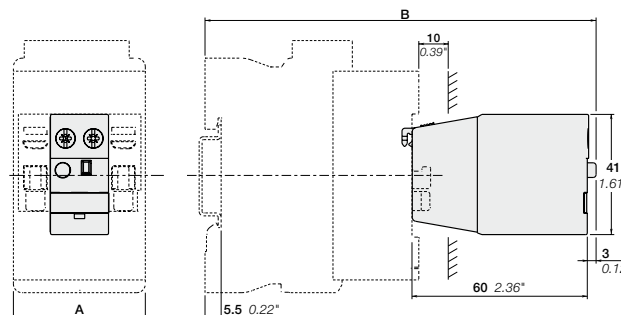


For contactors and contactor relays	Rated control circuit voltage U _c		Type	Order code	Pkg qty	Weight (1 pce)
	V AC 50/60 Hz	V DC				
AF09 ... AF65, 4-pole NF	24...60	24...60	WA4-11	1SBN040100R1011	1	0.080
	48...130	48...130	WA4-12	1SBN040100R1012	1	0.080
	100...250	100...250	WA4-13	1SBN040100R1013	1	0.080
	250...500	250...500	WA4-14	1SBN040100R1014	1	0.080
AF80, AF96	24...60	24...60	WA4-96-11	1SBN040200R1011	1	0.080
	48...130	48...130	WA4-96-12	1SBN040200R1012	1	0.080
	100...250	100...250	WA4-96-13	1SBN040200R1013	1	0.080
	250...500	250...500	WA4-96-14	1SBN040200R1014	1	0.080

Mechanical latching unit for 24 V DC - 500 mA PLC control

AF09 ... AF38, 4-pole NF	-	24	WA4-10	1SBN040100R1010	1	0.080
--------------------------	---	----	--------	-----------------	---	-------

Note: For WA4 accessory use with contactor or contactor relay coil 30, please consult your ABB local sales organization.



WA4 + AF09 ... AF96, NF 1-stack

Main dimensions mm, inches

For contactors and contactor relays	A mm in.	B mm in.
AF09 ... 16(Z)-30-...	45 1.77"	133.5 5.25"
AF09 ... 16(Z)-40/22-00 NF(Z)		
AF26 ... 38(Z)-30-00	45 1.77"	142.5 5.61"
AF26 ... 38(Z)-40/22-00	45 1.77"	157.5 6.20"
AF40 ... 65-30-00	55 2.16"	167 6.57"
AF40-40/22-00	70 2.75"	170 6.70"
AF52-40-00	70 2.75"	170 6.70"
AF80, 96-30-00	70 2.75"	172 6.77"
AF80-40/22-00	90 3.54"	172 6.77"

Mechanical latching unit

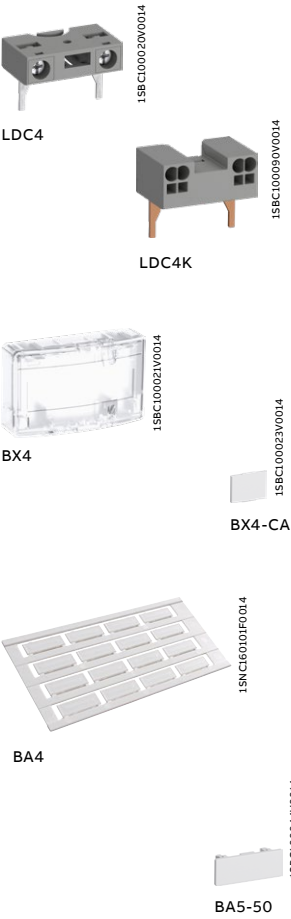
Technical data

Types	WA4, WA4-96	WA4
Coil voltage code	11, 12, 13, 14	10
Standards	IEC 60947-4-1	
Rated insulation voltage U_i acc. to IEC 60947-1	690 V AC	
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 $\theta \leq 70^\circ\text{C}$ $0.85 \times U_c \text{ min} \dots 1.1 \times U_c \text{ max}$
Control circuit voltage		
AC control voltage 50/60 Hz		
Rated control circuit voltage U_c	24 ... 500 V AC 50/60 Hz	–
Coil consumption	Average pull-in value	15 ... 100 VA
DC control voltage 50/60 Hz		
Rated control circuit voltage U_c	24 ... 500 V DC	24 V DC
Coil consumption	Average pull-in value	15 ... 100 W
Max. electrical impulse time		
On AC control supply (with load factor 1.6%)	4 s	–
On DC control supply (with load factor 1.6%)	4 s	
Min. electrical impulse time		
For latching, energizing of the contactor coil	120 ms	
For unlatching, energizing of the mechanical latching unit coil	50 ms	
Operating time		
On contactor closing (latching) between coil energization and:		
N.O. contact closing	No difference with the operation of a contactor without mechanical latching unit	
N.C. contact opening	No difference with the operation of a contactor without mechanical latching unit	
On contactor opening (unlatching) between mechanical latching unit coil energization and:		
N.O. contact opening	8 ... 15 ms	
N.C. contact closing	10 ... 17 ms	
Ambient air temperature		
Operation	-25 ... +70 °C	
Storage	-60 ... +80 °C	
Climatic withstand	Category B according to IEC 60947-1 Annex Q	
Max. operating altitude	≤ 3000 m	
Mounting positions	Mounting positions 1, 1+/- 30°, 2, 3, 4, 5	
Mechanical durability	AF09 ... AF38, NF: 1 million operating cycles	
	AF40 ... AF65: 0.5 million operating cycles	
	AF80, AF96: 0.2 million operating cycles	
Max. switching frequency with on-load factor of 1.6%	cycles/h	600

Connecting characteristics

Connection capacity (min. ... max.)		
 Rigid solid	1 x	1 ... 2.5 mm ²
 Flexible with non insulated ferrule	2 x	1 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	2 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm ²
 Flexible with insulated ferrule	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	IP20	
Screw terminals	Delivered in open position	
All terminals	M3.5	
Screwdriver type	Flat Ø 5.5 / Pozidriv 2	

Other accessories



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

Additional coil terminal blocks

Additional coil terminal blocks for a top and/or bottom access to the coil terminals of contactors or contactor relays.

With screw terminal

AF09 ... AF96, NF	LDC4	1SBN070156T1000	10	0.010
-------------------	------	-----------------	----	-------

With Push-in Spring terminal

AF09 ... AF96, NF	LDC4K	1SBN070159T1000	10	0.010
-------------------	-------	-----------------	----	-------

Protective covers

Sealable and transparent protective covers BX4 and non-removable BX4-CA to protect the devices against accidental contact.

AF09 ... AF96 1-stack contactors and NF contactor relays	BX4	1SBN110108T1000	10	0.006
4-pole CA4, 2-pole CAT4 auxiliary contact blocks and TEF4 electronic timer	BX4-CA	1SBN110109W1000	50	0.001

Note: BX4 produced since 13045 (day 045 - year 2013) are suitable for AF40 ... AF96.

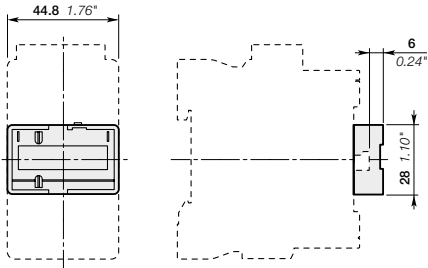
Function markers AF09 ... AF2850

Function markers designed to be clipped onto the front face of the contactor, manual motor starter or overload relays to identify them. Details can be added to these markers using a ball point pen, indelible felt-tip pen or pentel white.

Self-adhesive labels (not supplied) can also be added to them.

- BA4 : box with 16 blank cards (16 markers by card).
Marker dimensions: 7 x 20 mm (.276" x .787").
- BA5 : set of 50 pieces. Marker dimensions: 7 x 19 mm (.276" x .748").

AF09 ... AF370 contactors, TF thermal overload relays, EF electronic overload relays and MS116, MS132 manual motor starters	BA4	1SNA235156R2700	16	0.011
AF400 ... AF2850 and accessories	BA5-50	1SBN110000R1000	1	0.017



BX4

Main dimensions mm, inches

Other accessories



BP38-4

BDT4
For AF09 ... AF65, NFBDT4
For AF80 ... AF96

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

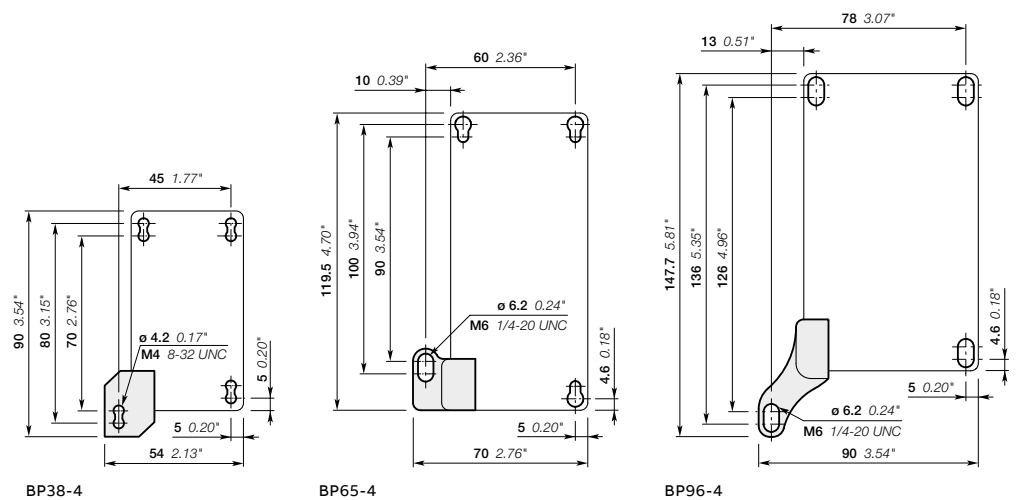
Mounting piece for replacing installed contactors fixed by screws by AF contactors.

From contactor	To contactor				
A26 ... A40, AL26 ... AL40	AF09 ... AF38	BP38-4	1SBN112303T1000	10	0.003
A50 ... A75, AE50 ... AE75, AF50 ... AF75	AF40 ... AF65	BP65-4	1SBN113403T1000	10	0.004
A95, A110, AE95, AE110, AF95, AF110	AF80 ... AF96	BP96-4	1SBN113903T1000	10	0.005

Test block

BDT4 test block is suitable for switching on contactor off-load.
Marking on the block indicates the contactor type to fit with.

AF09...AF96, NF	BDT4	1SBN110122T1000	10	0.007
-----------------	------	-----------------	----	-------



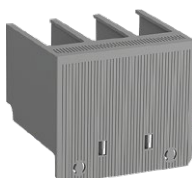
Main dimensions mm, inches

Terminal shrouds



LT65-30

1SBC100073V001.4



LT140-30L

1SFC101038V0001



LT370-30C

1SFC101041V0001



LT460-AC

1SFC101089V0001



LT80-40

1SBC100075V001.4



LT205-40

1SFC101199V0001

Main terminal protection for AF40 ... AF1250 contactors.

The auxiliary contact blocks and coils are designed to provide an IP 20 degree of protection.

The main terminals, equipped with compression lugs or cable clamps, can be protected against accidental direct contact after wiring (EN 50274) by the addition of terminal shrouds (see table below).

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
3-pole contactors				
AF40 ... AF65	LT65-30	1SBN123401R1000	1	0.015
AF80, AF96	LT96-30	1SBN123901R1000	1	0.020
AF116 ... AF146, with compression lugs	LT140-30L	1SFN124203R1000	2	0.070
AF190, AF205, with cable clamps	LT205-30C	1SFN124801R1000	2	0.050
AF190, AF205, with compression lugs	LT205-30L	1SFN124803R1000	2	0.220
AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL starters	LT205-30Y	1SFN124804R1000	1	0.050
AF265 ... AF370, with cable clamps	LT370-30C	1SFN125401R1000	2	0.035
AF265 ... AF370, with compression lugs	LT370-30L	1SFN125403R1000	2	0.280
AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL starters	LT370-30Y	1SFN125404R1000	1	0.075
AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4	LT370-30D	1SFN125406R1000	1	0.15
AF400, AF460 with cable clamps	LT460-AC	1SFN125701R1000	2	0.100
AF400, AF460 with compression lugs	LT460-AL	1SFN125703R1000	2	0.800
AF580, AF750 with cable clamps	LT750-AC	1SFN126101R1000	2	0.120
AF580, AF1250 with compression lugs	LT750-AL	1SFN126103R1000	2	0.825

4-pole contactors

AF40, AF52	LT52-40	1SBN123402R1000	1	0.020
AF80	LT80-40	1SBN123902R1000	1	0.025
AF116 ... AF140, with compression lugs	LT140-40L	1SFN124203R2000	2	0.090
AF190 ... AF205, with cable clamps	LT205-40C	1SFN124801R2000	2	0.035
AF190 ... AF205, with compression lugs	LT205-40L	1SFN124803R2000	2	0.140
AF265 ... AF370, with cable clamps	LT370-40C	1SFN125401R2000	2	0.040
AF265 ... AF370, with compression lugs	LT370-40L	1SFN125403R2000	2	0.165

Note: With LT65-30, LT96-30, LT52-40, LT80-40, use rigid cables or flexible cables with insulated ferrules including a stripping length ≥ 18 mm.

Connecting characteristics with LT ... terminal shrouds

Contactor types	AC / DC operated	AF40 ... 65 + LT65 ...	AF80 ... 96 + LT ...
		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 contactor (poles)			
Rigid solid	1 x	6...16 mm ² or 25 ...35 mm ²	6...16 mm ² or 25 ...70 mm ²
Flexible with insulated ferrule	2 x	6...16 mm ² or 25 ...35 mm ²	6...16 mm ² or 35 ... 50 mm ²
Bars or Lugs	1 x	4...16 mm ² or 25 ...35 mm ²	6...16 mm ² or 25 ...50 mm ²
	2 x	4...16 mm ² or 25 ...35 mm ²	6...16 mm ² or 35 ...50 mm ²
	L <	9.2 mm	12.2 mm
Connection capacity acc. to UL / CSA			
	1 x	AWG 10...6 or AWG 4..2	AWG 6 or AWG 4..1
	2 x	AWG 10...6 or AWG 4..2	AWG 6 or AWG 2..1
Stripping length		18 mm	18 mm
Tightening torque			
	Recommended	4 Nm / 35 lb.in	6 Nm / 53 lb.in
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP20	
Main terminals equipped with LT		IP20	
Screw terminals			
	Main terminals	M6	M8
	Screwdriver type	Flat Ø 6.5 / Pozidriv 2	hexagon socket (s = 4 mm)

Additional terminal blocks



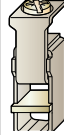
LD38-4

1SBC10038V0014

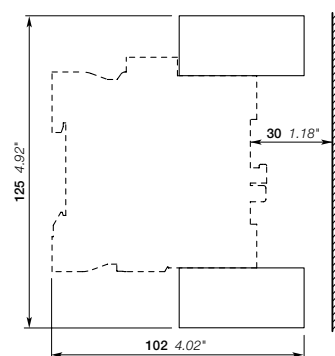
The LD terminal block is designed to increase the connecting capacity of 3-pole AF26 ... AF38 contactors on which it is fitted and for preparation of the wiring before final connection to the contactor. LD38-4 blocks are 3-pole terminal blocks with tunnel terminals.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF26 ... AF38	LD38-4	1SBN072308R1000	2	0.070

Technical data

Types	LD38-4
Rated insulation voltage U_i acc. to IEC 60947-4-1	690 V
acc. to UL / CSA	600 V
Main terminals	 Screw terminals with double connector 2 x (7 width x 5.8/9.2 depth)
Connection capacity (min. ... max.)	
 Rigid Solid ($\leq 4 \text{ mm}^2$)  Stranded ($\geq 6 \text{ mm}^2$)	1x 2.5...25 mm ² 1x 2.5...25 mm ² + 1x 2.5...16mm ²
 Flexible with non insulated ferrule	1x 2.5...16 mm ²
	1x 2.5...16mm ² + 1x 2.5...10mm ²
 Flexible with insulated ferrule	1x 2.5...16mm ²
	1x 2.5...16mm ² + 1x 2.5...10mm ²
Connection capacity acc. to UL / CSA	1x AWG 8-4 2x AWG 8-6
Stripping length	14 mm
Tightening torque	2.5 Nm / 22 lb.in
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529	IP20
Screw terminals	Delivered in closed position, screws of unused terminals must be tightened
Main terminals	M5
Screwdriver type	Flat Ø 6.5 / Pozidriv 2

Note: The utilization of LD38-4 additional terminal blocks does not allow the use of BER and BEY connection sets.



Main dimensions mm, inches

Terminals for control lead connections



LK96-4F

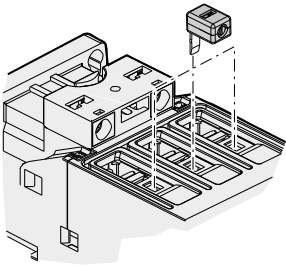
Terminal designed to connect the control conductors to the main poles of the AF40 ... AF96 contactors and derivative versions.
Accessory clipped into the slots placed above each power terminal connector.
The LK96-4F is fitted with a pin designed to hold them in place until the connector has been fully clamped with its power cable.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF40 ... AF96	LK96-4F	1SBN073452R2000	2	0.005

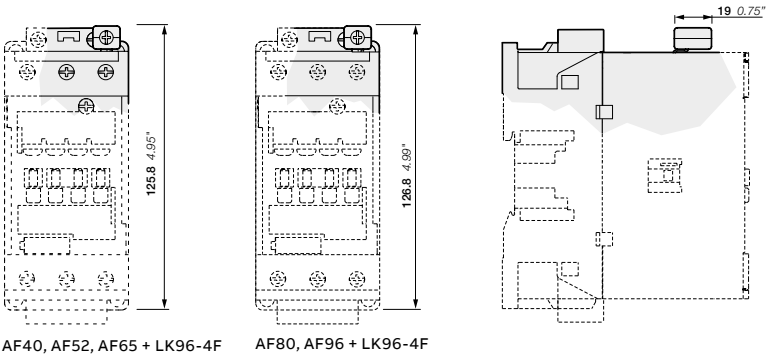
Note : LK96 not compatible with LT Terminal shrouds

Technical data

Types	LK96-4..	
Connection capacity (min. ... max.)		
Rigid	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 N.m / 11 lb.in
Degree of protection acc. to IEC/EN 60947-1 and IEC/EN 60529		IP20
Screw terminals	Delivered in open position, screws of unused terminals should be tightened M3.5	
All terminals		
Screwdriver type	Flat Ø 5.5 / Pozidriv 2	



LK positioning



AF40, AF52, AF65 + LK96-4F AF80, AF96 + LK96-4F

Main dimensions mm, inches

Connections



LW140

1SFC101050V0001



LW205-40

LW205-40



LX140

1SFC101049V0001



LL146-30

1SFC101073V0001



LD146-30

1SFC101049V0001



Terminal enlargements

Enlargement pieces designed to increase the width of the contactor terminal pads in order to allow larger connections to be mounted.

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

3-pole contactors

AF116 ... AF146	6.5	13 x 3	LW140	1SFN074207R1000	1	0.115
AF190, AF205	10.5	17.5 x 5	LW205	1SFN074807R1000	1	0.260
AF265 ... AF370	10.5	25 x 5	LW370	1SFN075407R1000	1	0.340
AF400, AF460	10.5	25 x 5	LW460	1SFN075707R1000	1	0.730
AF580, AF750	13	40 x 6	LW750	1SFN076107R1000	1	1.230
AF1250	13	50 x 10	LW1250	1SFN076407R1000	1	2.000

4-pole contactors

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

Terminal extension

Extension pieces designed to extend the main terminals of contactors for combined mounting of contactors and connection sets.

For 3-pole contactors	Dimensions		Type	Order code	Pkg qty	Weight (1 pce) kg
	hole Ø mm	bar mm				
AF116 ... AF146	6.5	13 x 3	LX140	1SFN074210R1000	1	0.072
AF190, AF205	8.5	17.5 x 5	LX205	1SFN074810R1000	1	0.180
AF265 ... AF370	10.5	20 x 5	LX370	1SFN075410R1000	1	0.234
AF400, AF460	10.5	25 x 5	LX460	1SFN075710R1000	1	0.500
AF580, AF750	13	40 x 6	LX750	1SFN076110R1000	1	0.850

Connection sockets

Connection socket can be used to replace built-in cable clamps in AF116 ... AF146.

For contactor	Type	Order code	Pkg qty	Weight (1 pce) kg
---------------	------	------------	---------	----------------------

3-pole contactors

AF116 ... AF146	LL146-30	1SFN074211R1000	6	0.102
AF190 ... AF205	LL205-30	1SFN074811R1000	1	0.166
AF265 ... AF370	LL370-30	1SFN075411R1000	1	0.173
AF400 ... AF460	LE460	1SFN075716R1000	6	0.600
AF580 ... AF750	LE750	1SFN076116R1000	6	0.750

4-pole contactors

AF116 ... AF140	LL146-40	1SFN074211R2000	8	0.132
AF190 ... AF205	LL205-40	1SFN074811R2000	2	0.216
AF265 ... AF370	LL370-40	1SFN075411R2000	2	0.224

Connection module

Connection module can be fixed on AF116 ... AF146 delivered with bar terminals.

For contactor	Type	Order code	Pkg qty	Weight (1 pce) kg
---------------	------	------------	---------	----------------------

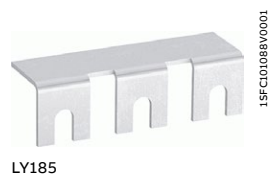
3-pole contactors

AF116 ... AF146	LD146-30	1SFN074208R1000	2	0.165
-----------------	----------	-----------------	---	-------

4-pole contactors

AF116 ... AF140	LD146-40	1SFN074208R2000	2	0.225
-----------------	----------	-----------------	---	-------

Terminal connecting strips and shorting bars



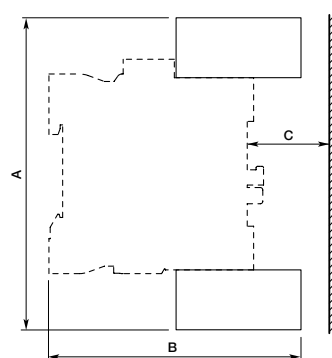
Parallel and series connection of 3-pole contactors:

- To obtain a star point (3 parallel-connected poles)
- To connect poles in parallel and thus increase the AC load passing through the flow path made up of the parallel-connected poles: LP, LY, LH, LF, LG.
The relevant cable cross-sectional area may limit the maximum permissible current. Consult information in table below
- To connect poles in series and thus increase the DC voltage controlled by the poles: LP, LY (only LY16-4 and LY38-4 secable strips).

Types	for connection of "n" poles	with terminal	insulated
LP	n = 2	no	no (1)
LY	n = 2 (secable LY16-4, LY38-4 connecting strips)	no	yes
	n = 3	no	yes (1)
LH	n = 2	yes	no
LF	n = 3	yes	yes
LG	n = 4	yes	yes

(1) LP460 ... LP750, LY185 ... LY750 not insulated. Use terminal shrouds.

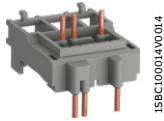
For contactors	max. nominal continuous current with "n" poles				Cable cross- sectional area mm²	Type	Order code	Pkg qty	Weight (1 pce)
	in parallel		in series						
	2 poles	3 poles	4 poles	2 poles					
	A								kg
AF09	30	33	–	25	6	LY16-4	1SBN071303T1000	10	0.006
AF12	32	36	–	27					
AF16	34	40	–	30					
AF26	50	60	–	45	10	LY38-4	1SBN072303T1000	10	0.012
AF116 ... AF146	–	240	–		–	LY140	1SFN074203R1000	1	0.055
AF190, AF205	–	400	–		–	LY185	1SFN074703R1000	1	0.200
AF265 ... AF370	–	670	–		–	LY300	1SFN075103R1000	1	0.300
AF400, AF460	–	1000	–		–	LY460	1SFN075703R1000	1	0.450
AF580, AF750	–	1650	–		–	LY750	1SFN076103R1000	1	0.800
AF190, AF205	300	–	–		–	LP185	1SFN074712R1000	2	0.300
AF265 ... AF370	475	–	–		–	LP300	1SFN075112R1000	2	0.400
AF400, AF460	725	–	–		–	LP460	1SFN075712R1000	2	0.550
AF580, AF750	1200	–	–		–	LP750	1SFN076112R1000	2	0.950
AF09	45		–	–	10	LH38-4	1SBN072304R1000	2	0.012
AF12	50		–	–					
AF16	54		–	–					
AF26	81		–	–					
AF30, AF38	90		–	–					
AF09		62	–		16	LF16-4	1SBN071305R1000	2	0.020
AF12		70	–		25				
AF16		75	–		25				
AF26		112	–		35	LF38-4	1SBN072305R1000	2	0.040
AF30, AF38		125	–		50				
AF09	–	–	70	–	25	LG16-4	1SBN071306R1000	2	0.025
AF12	–	–	78	–	25				
AF16	–	–	84	–	25				



Main dimensions

Type	For contactors	Dimensions					
		A		B		C	
		mm	inch	mm	inch	mm	inch
LH38-4	AF09 ... AF16	111.20	4.38"	83	3.27"	22	0.87"
	AF26 ... AF38	114	4.49"	86	3.39"	16	0.63"
LF16-4	AF09 ... AF16	121	4.76"	87	3.43"	23	0.91"
LF38-4	AF26 ... AF38	135.20	5.32"	103	4.06"	31	1.22"
LG16-4	AF09 ... AF16	124.20	4.89"	87	3.43"	23	0.91"

Connection accessories for starting solutions



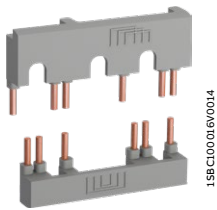
BEA16-4

1SBC100014V0014



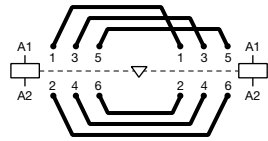
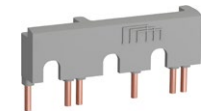
BPR65-4

1SBC100078V0014

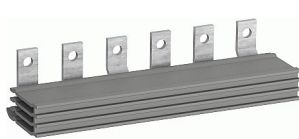


BER16-4

1SBC100016V0014

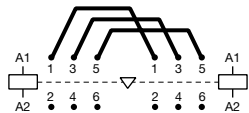
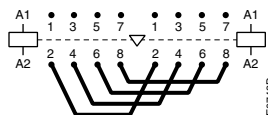
BER, BEM
Reversing connections

BEP16-30



BEP140-30

1SFC10032V0001

BEP, BES
3-pole phase to phase connectionsBEP
4-pole changeover connections

E0743D

Connecting links with manual motor starters

The BEA insulated 3-pole connecting links are used to connect AF09 ... AF65 contactors with the MS116 or MS132 or MS165 manual motor starters. The BEA insulated 3-pole connecting links ensure the electrical and mechanical connection between the contactor and the associated manual motor starter. BPR65-4 35 mm rail hooks used with BEA65-4 connecting link, allow direct mounting on 2 rails 35 mm of MS165 manual motor starters with AF40 ... AF65 contactors.

For 3-pole contactors	Manual motor starter	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25	BEA16-4	1SBN081306T1000	10	0.025
AF26 ... AF38	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10	BEA26-4	1SBN082306T1000	10	0.025
	MS116-20 ... MS116-32, MS132-12 ... MS132-32	BEA38-4	1SBN082306T2000	10	0.030
AF40 ... AF65	MS165-16 ... MS165-65	BEA65-4	1SBN083406R1000	1	0.090
	MS165-16 ... MS165-65 (1)	BPR65-4 (2)	1SBN113405R1000	1	0.014

Note : BEA not suitable for AF...Z contactors with DC control voltage 24 V DC (coil 30).

(1) Applicable for MS165 manufactured after week 31, 2016 (date code > 16214).

(2) Use one BPR65-4 for each contactor AF40 ... AF65.

Connection sets for reversing contactors

The BER and BEM connection sets are used to connect the main poles of two 3-pole contactors mounted side by side. The BER connection sets are made up of 1 upstream and 1 downstream connections. The BEM connection sets are made up of 3 upstream and 3 downstream connections. BER and BEM connection sets are insulated and made of solid copper bars.

For 3-pole contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	BER16-4	1SBN081311R1000	1	0.045
AF26 ... AF38	BER38-4	1SBN082311R1000	1	0.100
AF40 ... AF65	BER65-4	1SBN083411R1000	1	0.175
AF80, AF96	BER96-4	1SBN083911R1000	1	0.250
AF116 ... AF146	BER140-4	1SFN084211R1000	1	0.615
AF190, AF205	BER205-4	1SFN084811R1000	1	1.237
AF265 ... AF370	BER370-4	1SFN085411R1000	1	2.140
AF400, AF460	BEM460-30	1SFN085701R1000	1	4.400
AF580, AF750	BEM750-30	1SFN086101R1000	1	7.300

Phase to phase connections

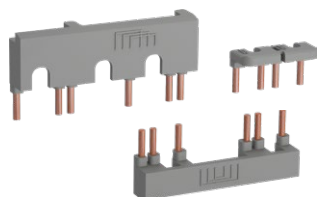
The BEP and BES connection sets are used to connect phase to phase between the main poles of two contactors mounted side by side. 4-pole contactors will then operate as source reversing contactors. The BEP connection sets contain 1 busbar used for upstream or downstream connection. The BES connection sets are made up of 3 busbars used for upstream or downstream connection. BEP and BES connection sets are insulated and made of solid copper bars.

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
3-pole contactors				
AF09 ... AF16	BEP16-30	1SBN081314R1000	1	0.025
AF26 ... AF38	BEP38-30	1SBN082314R1000	1	0.050
AF116 ... AF146	BEP140-30	1SFN084214R1000	1	0.320
AF190, AF205	BEP205-30	1SFN084814R1000	1	0.534
AF265 ... AF370	BEP370-30	1SFN085414R1000	1	0.926
AF400, AF460	BES460	1SFN085704R1000	1	2.200
AF580, AF750	BES750	1SFN086104R1000	1	3.700

4-pole contactors

AF116 ... AF140	BEP140-40	1SFN084214R2000	1	0.420
AF190 ... AF205	BEP205-40	1SFN084814R2000	1	0.710
AF265 ... AF370	BEP370-40	1SFN085414R2000	1	1.230

Connection sets for star-delta starter



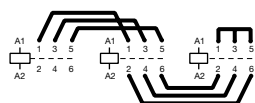
BEY16-4

1SBC10018V0014

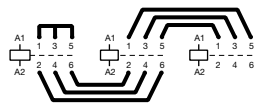
The BEY and BED connection sets are used to connect the main poles of the Line, Delta and Star contactors of a star-delta starter.

The connection sets are made up of:

- Line contactor / delta contactor:
 - BEY: upstream phase-to-phase connection
 - BED: upstream connection in parallel
- Delta contactor / star contactor: downstream connection in parallel
- Star contactor: star point upstream
- Insulated, solid copper bar.



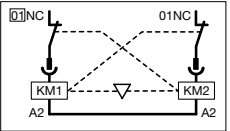
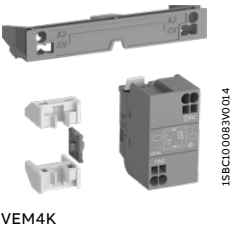
AF09 ... AF370
Line-delta-star connection



AF400 ... AF750
Star-delta-line connection

For 3-pole line, delta & star contactors	Interlock unit between delta & star contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF09 ... AF16	With or without VM4 or VEM4	BEY16-4	1SBN081313R2000	1	0.050
AF26 ... AF38	With or without VM4 or VEM4	BEY38-4	1SBN082713R2000	1	0.110
AF40 ... AF65	With or without VM96-4	BEY65-4	1SBN083413R2000	1	0.200
AF80, AF96	With or without VM96-4	BEY96-4	1SBN083913R2000	1	0.250
AF116 ... AF146	With or without VM19	BEY140-4	1SFN084413R1000	1	1.040
AF190 ... AF205 (line and delta)	With or without VM140/190	BEY190-4	1SFN084813R1000	1	1.154
AF116 ... AF146 (star)					
AF190, AF205	With or without VM19	BEY205-4	1SFN085213R1000	1	1.205
AF265 ... AF370 (line and delta)	With or without VM205/265	BEY265-4	1SFN085413R1000	1	2.020
AF190 ... AF205 (star)					
AF265 ... AF370	With or without VM19	BEY370-4	1SFN085813R1000	1	2.110
AF400 ... AF460	With or without VM750H	BED460	1SFN085703R1000	1	4.700
AF580 ... AF750 (line and delta)	With or without VM750H	BED580	1SFN085903R1000	1	6.300
AF400 ... AF460 (star)					
AF580 ... AF750	With or without VM750H	BED750	1SFN086103R1000	1	7.700

Connection accessories for starting solutions- with Push-in Spring terminals



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

Mechanical and electrical interlock set (1)

AF09..K ... AF16..K	0 2	VEM4K	1SBN030113R1000	1	0.030
AF26..K ... AF38..K					

Note: - VEM4K includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4K electrical interlock block with A2 - A2 connection.

- VE4K block must be used with A2-A2 connection to respect the electrical connection diagram.

- VEM4K not suitable for AF..Z contactors with DC control voltage 12 ... 20 V DC (coil 20 and 24 V DC (coil 30)).

For product availability, please consult your ABB local sales organization.

Connecting links with manual motor starters (1)

AF09..K ... AF16..K	with MS132-0.16K... MS132-25K	BEA16-4K1	1SBN081324T1000	10	0.052
AF26..K ... AF38..K	with MS132-0.16K... MS132-32K	BEA38-4K1	1SBN082324T1000	10	0.057

(1) For product availability, please consult your ABB local sales organization.

Note: BEA not suitable for AF..Z contactors with DC control voltage 24 V DC (coil 30).

Connection bars



BEA140/XT2

1SFC101061V0001



BEA205/T4

1SFC101064V0001



BEA370/T5

1SFC101059V0001

Connection between contactors/starters and moulded case circuit breakers.
These connection sets are solid copper bars.

For 3-pole contactors	MCCB	Type	Order code	Pkg qty	Weight (1 pce) kg
-----------------------	------	------	------------	---------	-------------------

Vertical assembly

AF116 ... AF146	XT2	BEA140/XT2	1SFN084206R1000	1	0.058
AF116 ... AF146	XT3	BEA140/XT3	1SFN084206R1002	1	0.070
AF116 ... AF146	XT4	BEA140/XT4	1SFN084206R1001	1	0.068
AF190, AF205	XT4	BEA205/XT4	1SFN084806R1000	1	0.200
AF190, AF205	T4	BEA205/T4	1SFN084806R1001	1	0.190
AF265 ... AF370	T5	BEA370/T5	1SFN085406R1000	1	0.350
AF400 ... AF750	T6	BEA750/T6	1SFN086106R1000	1	0.410
AF400 ... AF750	T5	BEA750/T5	1SFN086106R1001	1	0.410

Vertical assembly with control wire terminals

(also suitable when using busbar kits for starter combinations)

AF400 ... AF750	T5	BEA750D/T5	1SFN086106R1003	1	0.720
AF400 ... AF750	T6	BEA750D/T6	1SFN086106R1002	1	0.720

Horizontal assembly

(also suitable when using busbar kits for starter combinations)

AF400, AF460	T6/XT6	BEA460H/S6	1SFN085907R1000	1	2.450
--------------	--------	------------	-----------------	---	-------

Connection bars between contactors and switch fuse

Connection between contactors/starters and moulded case circuit breakers.
These connection sets are solid copper bars.

For 3-pole contactors	Switch fuse	Type	Order code	Pkg qty	Weight (1 pce) kg
-----------------------	-------------	------	------------	---------	-------------------

Vertical assembly

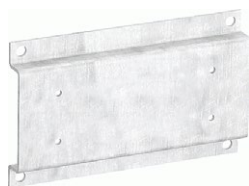
AF400, AF460	OESA400	BEF460/OESA400	1SFN085708R1000	1	0.340
AF460 ... AF750	OESA630 to OESA800	BEF750/OESA800	1SFN086108R1000	1	0.740

Horizontal assembly

AF400, AF460	OESA400...LR	OESA460H/OESA400	1SFN085709R1000	1	1.250
--------------	--------------	------------------	-----------------	---	-------

Note: The BEF connection bars provided for the A145 ... A300 contactors can be used for the AF145 ... AF300 contactors.

Adapter plates

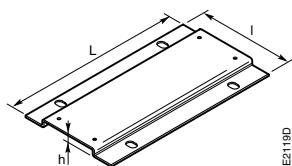


PR146-1

1SFC101048V0001

Adapter plates with fixing holes for replacing installed contactors.

From contactors	To contactor	Type	Order code	Pkg qty	Weight (1 pce) kg
A95, AF95, A110, AF110	AF116, AF140, AF146	PR146-1	1SFN094200R1000	1	0.300
EH150, EH160, EH175, EH210, EG160	AF190, AF205	PR210-1	1SFN094900R1000	1	0.440
EH250, EH260, EH300	AF265, AF305, AF370	PR300-1	1SFN095300R1000	1	0.560
EH370, EH550, EG315	AF400, AF460, AF580	PR460-1	1SFN095700R1000	1	0.900
EH700, EH800	AF750	PR750-1	1SFN096100R1000	1	0.500
OKYM150, OKYM175	AF190	PR185-2	1SFN095100R1001	1	0.500
OKYM200, OKYM250	AF265, AF305, AF370	PR300-2	1SFN095300R1001	1	0.500
OKYM315	AF400, AF460	PR400-2	1SFN095700R1002	1	0.820
OKYM400	AF400, AF460	PR460-2	1SFN095700R1001	1	0.800
OKYM500	AF580	PR580-2	1SFN096100R1002	1	0.700
EH550, EG630, OKYM630	AF580, AF750	PR750-2	1SFN096100R1001	1	1.100



EZ119D

Dimensions (mm)

Type of the plate	Dimensions			Fixing holes mm
	L	l	h	
PR146-1	150	90	15	4 x Ø 6.5
PR210-1	200	132	11.5	4 x Ø 7
PR300-1	200	172	11.5	4 x Ø 7
PR460-1	278	198	11.5	4 x Ø 7
PR750-1	283	244	11.5	4 x Ø 7
PR185-2	202	152	11.2	4 x Ø 11
PR300-2	202	152	11.2	4 x Ø 11
PR400-2	278	151	11.5	4 x Ø 11
PR460-2	278	176	11.5	4 x Ø 11
PR580-2	283	176	11.5	4 x Ø 11
PR750-2	283	255	11.5	4 x Ø 14

Fixing holes according to the plate types

Low Voltage Ride Through (LVRT) modules

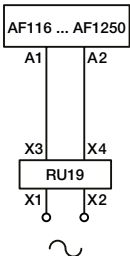


RU19 is designed to meet the Low Voltage Ride Through (LVRT) requirements for grid connections by staying operational during voltage dips preventing disturbances on the grid it self.

The RU19 is a separate module connected to the contactors coil connection A1-A2 creating a delay function of the opening of the contactor. When controlled by PLC, the contactor is operated directly whitout delay functionality. The RU19 can be screw or DIN rail mounted.

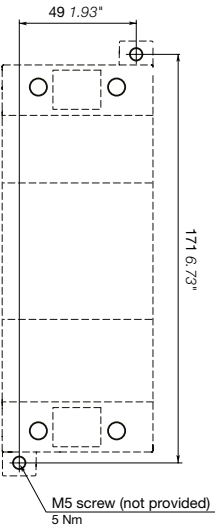
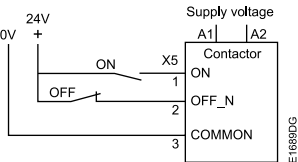
For contactor	Rated control circuit voltage Uc	Type	Order code	Weight Pkg (1 pce) kg
	V 50/60 Hz			
AF116 ... AF370 use coil 33	110...120	RU19/120	1SFN170801R1001	0.400
AF400 ... AF1250 use coil 69				
AF116 ... AF370 use coil 33	230...240	RU19/240	1SFN170801R1002	0.400
AF400 ... AF1250 use coil 70				

AF116 ... AF1250



For direct opening of AF400 ... AF1250 contactors, connect through built in PLC interface.

Control inputs



RU19/240

Main dimensions mm, inches

Spare parts contactors

Contactor coils, main contact sets and arc chutes



ZAF1650

Contactor coils

For contactors	Rated control circuit voltage Uc min. ... Uc max.		Type	Order code	Pkg qty	Weight (1 pce) kg
	V 50/60 Hz	V DC				
AF400, AF460	-	24...60	ZAF460	1SFN155770R6806	1	0.525
	48...130	48...130	ZAF460	1SFN155770R6906	1	0.525
	100...250	100...250	ZAF460	1SFN155770R7006	1	0.525
	250...500	250...500	ZAF460	1SFN155770R7106	1	0.525
AF580 ... AF1250	-	24...60	ZAF750	1SFN156170R6806	1	1.335
	48...130	48...130	ZAF750	1SFN156170R6906	1	1.335
	100...250	100...250	ZAF750	1SFN156170R7006	1	1.335
	250...500	250...500	ZAF750	1SFN156170R7106	1	1.335
AF1350 ... AF2050	100...250	100...250	ZAF1650 (1)	1SFN156570R7026	1 set	0.900
			ZP1650 (2)	1SFN166521R1070	1	0.300
AF2650	100...250	100...250	ZAF2650 (1)	1SFN156670R7026	1 set	0.900
			ZP2650 (2)	1SFN166621R1070	1	0.300

ZAF460, ZAF750 : printed circuit board included.

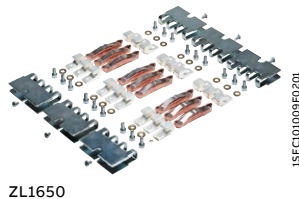
(1) One set of two coil.

(2) Printed circuit board.

Main contact sets

Replacement parts for the main contacts. Set for AF116 ... AF370 includes complete base, complete moving contact bridge and return springs.

Set for AF400 ... AF2650 consists of six fixed contacts, three moving contacts, springs and the required screws.



ZL1650

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

3-pole contactors

AF116		ZL116	1SFN164203R1000	1	0.410
AF140		ZL140	1SFN164403R1000	1	0.410
AF146		ZL146	1SFN164603R1000	1	0.410
AF190		ZL190	1SFN164803R1000	1	1.093
AF205		ZL205	1SFN165203R1000	1	1.093
AF265		ZL265	1SFN165403R1000	1	2.010
AF305		ZL305	1SFN165803R1000	1	2.010
AF370		ZL370	1SFN166003R1000	1	2.010
AF400		ZL400	1SFN165703R1000	1	1.320
AF460		ZL460	1SFN165903R1000	1	1.320
AF580		ZL580	1SFN166103R1000	1	1.840
AF750		ZL750	1SFN166303R1000	1	1.840
AF1250		ZL1250	1SFN166403R1000	1	1.840
AF1350	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL1350	1SFN166503R1000	1	2 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL1350-1	1SFN166503R1001	1	4 500
AF1650	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL1650	1SFN166703R1000	1	3 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL1650-1	1SFN166703R1001	1	4 500
AF2050	For contactors produced before 2014-01-13, with serial number before 1S16010051403xxxx	ZL2050	1SFN167003R1000	1	3 500
	For contactors produced since 2014-01-13, with serial number above 1S16010051403xxxx	ZL2050-1	1SFN167003R1001	1	4 500
AF2650 (3)		ZL2650	1SFN166603R1000	1	1.200

4-pole contactors

AF116	ZLT116	1SFN164204R1000	1	0.435
AF140	ZLT140	1SFN164404R1000	1	0.435
AF190	ZLT190	1SFN164804R1000	1	2.038
AF205	ZLT205	1SFN165204R1000	1	2.038
AF265	ZLT265	1SFN165404R1000	1	2.222
AF305	ZLT305	1SFN165804R1000	1	2.222
AF370	ZLT370	1SFN166004R1000	1	2.222

(3) Does not include fixed contacts and screws.

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Contactor coil modules

Coil modules replacement kit for 3-pole contactors. Includes coil, electronic module, fasteners, damping and terminal cover.

	Rated control circuit		Type	Order code	Pkg qty	Weight (1 pce) kg
	Voltage Uc	V DC				
	V 50/60Hz	V DC				
3-pole contactors						
AF116	24...60	20...60	ZAF116-11	1SFN154270R1106	1	0.324
	48...130	48...130	ZAF116-12	1SFN154270R1206	1	0.313
	100...250	100...250	ZAF116-13	1SFN154270R1306	1	0.288
	250...500	250...500	ZAF116-14	1SFN154270R1406	1	0.040
AF140	24...60	20...60	ZAF140-11	1SFN154470R1106	1	0.324
	48...130	48...130	ZAF140-12	1SFN154470R1206	1	0.313
	100...250	100...250	ZAF140-13	1SFN154470R1306	1	0.288
	250...500	250...500	ZAF140-14	1SFN154470R1406	1	0.298
AF146	24...60	20...60	ZAF146-11	1SFN154670R1106	1	0.324
	48...130	48...130	ZAF146-12	1SFN154670R1206	1	0.313
	100...250	100...250	ZAF146-13	1SFN154670R1306	1	0.288
	250...500	250...500	ZAF146-14	1SFN154670R1406	1	0.298
AF19, AF205	24...60	20...60	ZAF205-11	1SFN154870R1106	1	0.856
	48...130	48...130	ZAF205-12	1SFN154870R1206	1	0.831
	100...250	100...250	ZAF205-13	1SFN154870R1306	1	0.823
	250...500	250...500	ZAF205-14	1SFN154870R1406	1	0.818
AF265, AF305, AF370	24...60	20...60	ZAF370-11	1SFN155470R1106	1	1.262
	48...130	48...130	ZAF370-12	1SFN155470R1206	1	1.316
	100...250	100...250	ZAF370-13	1SFN155470R1306	1	1.036
	250...500	250...500	ZAF370-14	1SFN155470R1406	1	1.006
AF400, AF460	-	24...60	ZAF460	1SFN155770R6806	1	0.525
	48...130	48...130	ZAF460	1SFN155770R6906	1	0.525
	100...250	100...250	ZAF460	1SFN155770R7006	1	0.525
	250...500	250...500	ZAF460	1SFN155770R7106	1	0.525
AF580 ... AF1250	-	24...60	ZAF750	1SFN156170R6806	1	1.335
	48...130	48...130	ZAF750	1SFN156170R6906	1	1.335
	100...250	100...250	ZAF750	1SFN156170R7006	1	1.335
	250...500	250...500	ZAF750	1SFN156170R7106	1	1.335
AF1350 ... AF2050	100...250	100...250	ZAF1650 (1)	1SFN156570R7026	1 set	0.900
			ZP1650 (2)	1SFN166521R1070	1	0.300
AF2650	100...250	100...250	ZAF2650 (1)	1SFN156670R7026	1 set	0.900
			ZP2650 (2)	1SFN166621R1070	1	0.300

3-pole contactors with built-in PLC interface

AF116	100...250	100...250	ZAF116-33	1SFN154270R3306	1	0.310
	250...500	250...500	ZAF116-34	1SFN154270R3406	1	0.324
AF140	100...250	100...250	ZAF140-33	1SFN154470R3306	1	0.310
	250...500	250...500	ZAF140-34	1SFN154470R3406	1	0.324
AF146	100...250	100...250	ZAF146-33	1SFN154670R3306	1	0.310
	250...500	250...500	ZAF146-34	1SFN154670R3406	1	0.324
AF190	100...250	100...250	ZAF190-33	1SFN154870R3306	1	0.893
	250...500	250...500	ZAF190-34	1SFN154870R3406	1	0.878
AF205	100...250	100...250	ZAF205-33	1SFN155270R3306	1	0.893
	250...500	250...500	ZAF205-34	1SFN155270R3406	1	0.878
AF265	100...250	100...250	ZAF265-33	1SFN155470R3306	1	1.124
	250...500	250...500	ZAF265-34	1SFN155470R3406	1	1.094
AF305	100...250	100...250	ZAF305-33	1SFN155870R3306	1	1.124
	250...500	250...500	ZAF305-34	1SFN155870R3406	1	1.094
AF370	100...250	100...250	ZAF370-33	1SFN156070R3306	1	1.124
	250...500	250...500	ZAF370-34	1SFN156070R3406	1	1.094

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Contactor coil modules

Coil modules replacement kit for 3-pole contactors. Includes coil, electronic module, fasteners, damping and terminal cover.

	Rated control circuit		Type	Order code	Pkg qty	Weight (1 pce)
	Voltage Uc	V DC				
	V 50/60Hz	V DC				kg
4-pole contactors						
AF116	24...60	20...60	ZAF116-40-11	1SFN154270R1146	1	0.340
	48...130	48...130	ZAF116-40-12	1SFN154270R1246	1	0.331
	100...250	100...250	ZAF116-40-13	1SFN154270R1346	1	0.308
	250...500	250...500	ZAF116-40-14	1SFN154270R1446	1	0.320
AF140	24...60	20...60	ZAF140-40-11	1SFN154470R1146	1	0.340
	48...130	48...130	ZAF140-40-12	1SFN154470R1246	1	0.331
	100...250	100...250	ZAF140-40-13	1SFN154470R1346	1	0.308
	250...500	250...500	ZAF140-40-14	1SFN154470R1446	1	0.320
AF190, AF205	24...60	20...60	ZAF205-40-11	1SFN154870R1146	1	0.864
	48...130	48...130	ZAF205-40-12	1SFN154870R1246	1	0.841
	100...250	100...250	ZAF205-40-13	1SFN154870R1346	1	0.839
	250...500	250...500	ZAF205-40-14	1SFN154870R1446	1	0.834
AF265, AF305, AF370	24...60	20...60	ZAF370-40-11	1SFN155470R1146	1	1.272
	48...130	48...130	ZAF370-40-12	1SFN155470R1246	1	1.328
	100...250	100...250	ZAF370-40-13	1SFN155470R1346	1	1.052
	250...500	250...500	ZAF370-40-14	1SFN155470R1446	1	1.032

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Electronic Modules

Control circuit electronic module spare part.

	Rated control circuit		Type	Order code	Pkg qty	Weight (1 pce)
	Voltage Uc	V DC				
	V 50/60Hz	V DC				kg
3-pole contactors						
AF116	24...60	20...60	ZP116-11	1SFN164223R1011	1	0.133
	48...130	48...130	ZP116-12	1SFN164223R1012	1	0.131
	100...250	100...250	ZP116-13	1SFN164223R1013	1	0.133
	250...500	250...500	ZP116-14	1SFN164223R1014	1	0.143
AF140	24...60	20...60	ZP140-11	1SFN164423R1011	1	0.133
	48...130	48...130	ZP140-12	1SFN164423R1012	1	0.131
	100...250	100...250	ZP140-13	1SFN164423R1013	1	0.133
	250...500	250...500	ZP140-14	1SFN164423R1014	1	0.143
AF146	24...60	20...60	ZP146-11	1SFN164623R1011	1	0.133
	48...130	48...130	ZP146-12	1SFN164623R1012	1	0.131
	100...250	100...250	ZP146-13	1SFN164623R1013	1	0.133
	250...500	250...500	ZP146-14	1SFN164623R1014	1	0.143
AF190, AF205	24...60	20...60	ZP205-11	1SFN164823R1011	1	0.610
	48...130	48...130	ZP205-12	1SFN164823R1012	1	0.610
	100...250	100...250	ZP205-13	1SFN164823R1013	1	0.610
	250...500	250...500	ZP205-14	1SFN164823R1014	1	0.620
AF265, AF305, AF370	24...60	20...60	ZP370-11	1SFN165423R1011	1	0.696
	48...130	48...130	ZP370-12	1SFN165423R1012	1	0.704
	100...250	100...250	ZP370-13	1SFN165423R1013	1	0.694
	250...500	250...500	ZP370-14	1SFN165423R1014	1	0.694

3-pole contactors with built-in PLC interface

AF116	100...250	100...250	ZP116-33	1SFN164223R1033	1	0.155
	250...500	250...500	ZP116-34	1SFN164223R1034	1	0.169
AF140	100...250	100...250	ZP140-33	1SFN164423R1033	1	0.155
	250...500	250...500	ZP140-34	1SFN164423R1034	1	0.169
AF146	100...250	100...250	ZP146-33	1SFN164623R1033	1	0.155
	250...500	250...500	ZP146-34	1SFN164623R1034	1	0.169
AF190	100...250	100...250	ZP190-33	1SFN164823R1033	1	0.680
	250...500	250...500	ZP190-34	1SFN164823R1034	1	0.680
AF205	100...250	100...250	ZP205-33	1SFN165223R1033	1	0.680
	250...500	250...500	ZP205-34	1SFN165223R1034	1	0.680
AF265	100...250	100...250	ZP265-33	1SFN165423R1033	1	0.782
	250...500	250...500	ZP265-34	1SFN165423R1034	1	0.782
AF305	100...250	100...250	ZP305-33	1SFN165823R1033	1	0.782
	250...500	250...500	ZP305-34	1SFN165823R1034	1	0.782
AF370	100...250	100...250	ZP370-33	1SFN166023R1033	1	0.782
	250...500	250...500	ZP370-34	1SFN166023R1034	1	0.782

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Spare parts contactors

Contactor coils, main contact sets and arc chutes

Electronic Modules

Control circuit electronic module spare part.

	Rated contol circuit Voltage Uc		Type		Pkg qty	Weight (1 pce) kg
	V 50/60Hz	V DC				
4-pole contactors						
AF116	24...60	20...60	ZPT116-11	1SFN164224R1011	1	0.149
	48...130	48...130	ZPT116-12	1SFN164224R1012	1	0.149
	100...250	100...250	ZPT116-13	1SFN164224R1013	1	0.153
	250...500	250...500	ZPT116-14	1SFN164224R1014	1	0.165
AF140	24...60	20...60	ZPT140-11	1SFN164424R1011	1	0.149
	48...130	48...130	ZPT140-12	1SFN164424R1012	1	0.149
	100...250	100...250	ZPT140-13	1SFN164424R1013	1	0.153
	250...500	250...500	ZPT140-14	1SFN164424R1014	1	0.165
AF190, AF205	24...60	20...60	ZPT205-11	1SFN165224R1011	1	0.618
	48...130	48...130	ZPT205-12	1SFN165224R1012	1	0.620
	100...250	100...250	ZPT205-13	1SFN165224R1013	1	0.626
	250...500	250...500	ZPT205-14	1SFN165224R1014	1	0.636
AF265, AF305, AF370	24...60	20...60	ZPT370-11	1SFN166024R1011	1	0.706
	48...130	48...130	ZPT370-12	1SFN166024R1012	1	0.716
	100...250	100...250	ZPT370-13	1SFN166024R1013	1	0.710
	250...500	250...500	ZPT370-14	1SFN166024R1014	1	0.720

Note: Only suitable for AF116...AF370 contactors "Made in Sweden" produced after 2018-09-01 (010918).

Arc chutes

For contactors	Type	Order code	Pkg qty	Weight (1 pce) kg
AF400, AF460	ZW460	1SFN165710R1000	1	1.380
AF580, AF750, AF1250	ZW750	1SFN166110R1000	1	1.500
AF1350, AF1650, AF2050	ZW1650	1SFN166510R1001	1	4.560
AF2650	ZW2650	1SFN166610R1000	1	4.000

Notes