

AF50 - AF1650

General information

AC & DC operated, UL rated, 3 phase

Application

A-Line contactors are mainly used for controlling 3-phase motors and for controlling power circuits corresponding to their operating characteristics up to 690 and even 1000 VAC. and 440 VDC.

Description of 3 pole contactors AF50 - AF1650

All AF contactors can be assembled side by side. The add-on auxiliary contacts are suitable for low level currents.

Quick mounting on DIN rail: EN 50022 and EN 50023 standards:

35 x 15mm for AF50 - AF75

75mm for AF50 - AF110

Location of side mounted accessories: on right or left hand side. Factory mounted on left hand side for CAL5 on AF50 - AF1650

Holes for screw mounting (screws not supplied). Distance between holes according to EN 50003.

Terminals delivered in open position with captive screws (screws of unused terminals must be tightened).

Screwdriver guidance for all terminals makes it possible to use motorized screwdrivers.

All terminals provide protection against accidental direct contact with live parts according to VDE0106 - Part. 100.

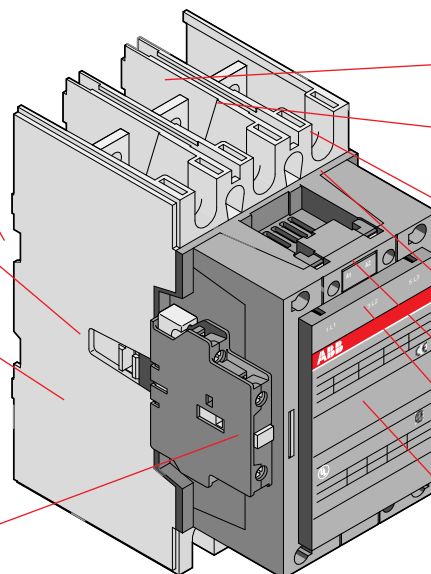
All AF50- AF110 contactor terminals as well as AF50 - AF1650 contactor auxiliary contact and coil terminals ensure IP20 degree of protection according to IEC 947-1.

Control circuit types

- AF types: AC/DC operated with laminated magnetic circuit.

Contact or types

- 3 pole contactors with 1 NO or 1 NC factory assembled auxiliary contacts for AF50 - AF1650 contactors



AF50 - AF1650

Surge suppressors built in as standard on the printed circuit board.

Clear marking of coil voltages and frequencies.

Connecting point for control leads in top part of main terminals of AF50 - AF75 contactors. For AF95 & AF110 contactors these are additional power connections.

Terminal marking according to IEC 947-4-1, EN 50005, EN 50012 and NEMA standards.

Location of function marker.

Stops for attaching front mounted accessories.

Terminal screws:

- Posidrive (+, -) No 2 for all AF50 - AF75
- M8 hex threaded socket screw for AF95 - AF1650 main terminals.

Catalog number explanation

AF50 - 30 - 11 - 70

Frame size

Power pole

30 = 3 NO
40 = 4 NO
22 = 2 NO & 2 NC

Coil voltage

(see coil voltage selection chart)

Auxiliary contacts

11 = 1 NO & 1 NC
00 = No auxiliary provided
22 = 2 NO & 2 NC

Coil voltage selection – AF50 to AF1650

AC/DC VOLTS, 40 - 60 Hz				
24 - 60 DC	20 - 60 DC	48 - 130 AC/DC	100 - 250 AC/DC	250 - 500 AC/DC
68 ①	72 ②	69	70 ③	71 ④

① AF400 - AF750, DC only.

② AF50 - AF300, DC only.

③ Only option for AF1350 / AF1650.

④ AF400 - AF750 only.

AF50 - AF1650

Non-reversing, mechanically interlocked, reversing
AC & DC operated, UL rated, 3 phase

Across the line
contactors

1



AF63-30-11-70



AF95-30-11-70



AF400-30-11-70



AF750-30-11-70

3 Pole

General purpose current	UL motor switching current	Maximum UL Listed motor horsepower ratings				Standard auxiliary contacts		Non-reversing	Mechanically interlocked	Reversing
		208V	240V	480V	575/600V	NO	NC	Catalog number	Catalog number	Catalog number
AC1										
80	54	15	20	40	50	1	1	AF50-30-11-70	AF50M-30-11-70	AF50R-30-11-70
90	65	20	25	50	60	1	1	AF63-30-11-70	AF63M-30-11-70	AF63R-30-11-70
105	80	25	30	60	75	1	1	AF75-30-11-70	AF75M-30-11-70	AF75R-30-11-70
125	95	30	30	60	75	1	1	AF95-30-11-70	AF95M-30-11-70	AF95R-30-11-70
140	110	30	40	75	100	1	1	AF110-30-11-70	AF110M-30-11-70	AF110R-30-11-70
230	130	40	50	100	125	1	1	AF145-30-11-70	AF145M-30-11-70	AF145R-30-11-70
250	156	50	60	125	150	1	1	AF185-30-11-70	AF185M-30-11-70	AF185R-30-11-70
300	192	60	75	150	200	1	1	AF210-30-11-70	AF210M-30-11-70	AF210R-30-11-70
350	248	75	100	200	250	1	1	AF260-30-11-70	AF260M-30-11-70	AF260R-30-11-70
400	302	100	100	250	300	1	1	AF300-30-11-70	AF300M-30-11-70	AF300R-30-11-70
550	414	125	150	350	400	1	1	AF400-30-11-70	AF400M-30-11-70	AF400R-30-11-70
650	480	150	200	400	500	1	1	AF460-30-11-70	AF460M-30-11-70	AF460R-30-11-70
750	602	200	250	500	600	1	1	AF580-30-11-70	AF580M-30-11-70	AF580R-30-11-70
900	810	250	300	600	700	1	1	AF750-30-11-70	AF750M-30-11-70	AF750R-30-11-70
1260	—	—	—	—	—	1	1	AF1250-30-11-70	—	—
1350	960	—	400	800	900	1	1	AF1350-30-11-70	—	—
1650	1080	—	450	900	1000	1	1	AF1650-30-11-70	—	—
2050	—	—	—	—	—	1	1	AF2050-30-11-70	—	—

Coil voltage selection – wide range AC/DC coils

All catalog numbers include a 100-250V AC/DC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 24V coil is required for a AF110 contactor: AF110-30-11-72

Coil voltage selection – AF50 to AF1650

AC/DC VOLTS, 40 - 60 Hz				
24 - 60 DC	20 - 60 DC	48 - 130 AC/DC	100 - 250 AC/DC	250 - 500 AC/DC
68 ①	72 ②	69	70 ③	71 ④

① AF400 – AF1250, DC only.

② AF50 – AF300, DC only.

③ Only option for AF1350 - AF2050.

④ AF400 - AF750 only.

A/AF/AL9 - A/AF/AL110

Contactors for ring tongue termination
AC & DC operated, UL rated, 3 phase

UL general purpose current AC1	UL Motor switching current	UL/CSA horsepower ratings			Auxiliary contacts		AC operated	DC operated
		240V	480V	575/600V	NO	NC	Catalog number	Catalog number
21	9	2	5	7.5	1 0	0 1	A93010RT-84 A93001RT-84	AL93010RT-81 AL93001RT-81
25	11	3	7.5	10	1 0	0 1	A123010RT-84 A123001RT-84	AL123010RT-81 AL123001RT-81
30	17	5	10	15	1 0	0 1	A163010RT-84 A163001RT-84	AL163010RT-81 AL163001RT-81
40	28	10	20	25	1 0	0 1	A263010RT-84 A263001RT-84	AL263010RT-81 AL263001RT-81
80	54	20	40	50	0	0	A503000RT-84	AF503000RT-70
90	65	25	50	60	0	0	A633000RT-84	AF633000RT-70
105	80	30	60	75	0	0	A753000RT-84	AF753000RT-70
125	95	30	60	75	0	0	AF95B3011RT-70	AF95B3011RT-70
140	110	40	75	100	0	0	AF110B3011RT-70	AF110B3011RT-70

Coil voltage selection – AC coils

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the AC coils Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 contactor: A753000RT-80

Coil voltage selection – DC coils

All DC operated catalog numbers include a 24VDC coil. To select other coil voltages, substitute the code from the DC coils Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 110V coil is required for an AE75 contactor: AE753000RT-86

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.2. Add \$ 20 to list price for each additional auxiliary, and see page 1.32 for available combinations. Only side-mounted blocks are allowed to be factory installed.

Auxiliary contact block with ring tongue termination

Positioning	Maximum number of contact blocks	Contact description	Catalog number
Front mounting (C4-pole)	1 block A/AE9 – A/AE110	2 NO & 2 NC 3 NO & 1 NC 4 NO	CA5-22ERT CA5-31ERT CA5-40ERT

Coil voltage selection chart – AC coils

Hz	Cntr. type	Volts															
		12	24	48	110	120	125	208	220	240	277	380	415	440	480	500	600
60	A		81	83	84	84		34	36	80	42		86	86	51	53	55
50	A		81	83	84				80				85	86		55	

For other voltages, see page 1.24.

Coil voltage selection chart – DC coils

Hz	Contr. type	Volts					
		24	48	110	125	220	240
DC	AE	81	83	86	87	88	89

For other voltages, see page 1.24.

A9 – AF1650

Non-reversing, mechanically interlocked, reversing
NEMA rated, AC operated, 3 phase

Across the line
contactors

1



A26N1-30-10-84



A145N4-30-11-84



AF400N6-30-11-70

NEMA size	Continuous current	Maximum motor horsepower ratings 			Standard Aux. contacts		Non-reversing	Mechanically interlocked	Reversing
		200V	230V	460/575V	NO	NC	Catalog number	Catalog number	Catalog number
		NEMA rated							
00	9	1.5	1.5	2	1	0	A9N00-30-10-84	A9N00M-10-84	A9N00R-10-84
0	18	3	3	5	1	0	A16N0-30-10-84	A16N0M-10-84	A16N0R-10-84
1	27	7.5	7.5	10	1	0	A26N1-30-10-84	A26N1M-10-84	A26N1R-10-84
2	45	10	15	25	1	1	A50N2-30-11-84	A50N2M-11-84	A50N2R-11-84
3	90	25	30	50	1	1	A75N3-30-11-84	A75N3M-11-84	A75N3R-11-84
4	135	40	50	100	1	1	A145N4-30-11-84	A145N4M-11-84	A145N4R-11-84
5	270	75	100	200	1	1	A260N5-30-11-84	A260N5M-11-84	A260N5R-11-84
6	540	150	200	400	1	1	AF460N6-3011-70	AF460N6M-11-70	AF460N6R-11-70
7	810	—	300	600	1	1	AF750N7-3011-70	AF750N7M-11-70	AF750N7R-11-70
8	1215	—	450	900	1	1	AF1650N83011-70	—	—

Coil voltage selection – A contactors

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 contactor: A75N3-30-11-**80**

Coil voltage selection – wide range AC/DC coils

The NEMA size 6, 7 and 8 contactors are provided with a wide range coil voltage. They are shown with the standard 100-250V AC/DC coil. To select other ranges substitute the code from the coil voltage selection chart for the two digits after the last dash in the catalog number.

Ex.: A 24V coil is required for the AF460N6 contactor: AF460N6-3011-**68**

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.2. Add \$ 20 to list price for each additional auxiliary, and see page 1.32 for available combinations.

Mechanical interlock

Mechanically interlocked contactors are designed for reversing, 2 speed, reduced voltage, etc. type starter applications. The complete assembly consists of two mechanically and electrically interlocked contactors mounted as follows with line and load terminals:

- A9 - A16 — mounted on 35mm DIN rail
- A26 - A750 — mounted on common baseplate

Power wiring is not included.

For A9 - A110 contactors the NC electrical interlock is provided with the mechanical interlock.

Reversing

Reversing contactors are designed for reversing type starter applications. The complete assembly consists of two mechanically and electrically interlocked contactors mounted as follows with line and load terminals:

- A9 - A16 — mounted on 35mm DIN rail
- A26 - A750 — mounted on common baseplate

For A9 - A750 contactors the NC electrical interlock is provided with the mechanical interlock.

Coil voltage selection – A contactors

Hz	Cntr type	Volts													
		12	24	48	110	120	125	208	220	240	277	380	415	440	480
60	A		81	83	84	84		34	36	80	42		86	86	51
50	A		81	83	84				80			85	86		55

For other voltages, see page 1.24.

Coil voltage selection – AF460N6 to AF1650N8

AC/DC VOLTS, 40 - 60 HZ			
24 - 60 DC	48 - 130 AC/DC	100 - 250 AC/DC	250-500 AC/DC
68 ①	69	70 ③	71 ②

① AF400 – AF750, DC only.

② AF400 - AF750 only.

③ Only option for AF1650.

AE9 – AF1650, AL9 – AL26

Non-reversing, mechanically interlocked, reversing
NEMA rated, DC operated, 3 phase



AE26N1-30-11-81



AF145N4-30-11-68



AF460N6R-11-68

AE & AF Contactors

NEMA size	Continuous current	Maximum motor horsepower ratings 			Standard Aux. contacts		Non-reversing	Mechanically interlocked	Reversing
		200V	230V	460/575V	NO	NC	Catalog number	Catalog number	Catalog number
		NEMA rated							
00	9	1.5	1.5	2	1	0	AE9N00-30-11-81	AE9N00M-11-81	AE9N00R-11-81
0	18	3	3	5	1	0	AE16N0-30-11-81	AE16N0M-11-81	AE16N0R-11-81
1	27	7.5	7.5	10	1	0	AE26N1-30-11-81	AE26N1M-11-81	AE26N1R-11-81
2	45	10	15	25	1	1	AE50N2-30-11-81	AE50N2M-11-81	AE50N2R-11-81
3	90	25	30	50	1	1	AE75N3-30-11-81	AE75N3M-11-81	AE75N3R-11-81
4	135	40	50	100	1	1	AF145N4-3011-70	AF145N4M-11-70	AF145N4R-11-70
5	270	75	100	200	1	1	AF260N5-3011-70	AF260N5M-11-70	AF260N5R-11-70
6	540	150	200	400	1	1	AF460N6-3011-70	AF460N6M-11-70	AF460N6R-11-70
7	810	—	300	600	1	1	AF750N7-3011-70	AF750N7M-11-70	AF750N7R-11-70
8	1215	—	450	900	1	1	AF1650N83011-70	—	—

AL Contactors

NEMA size	Continuous current	Maximum motor horsepower ratings 			Standard Aux. contacts		Non-reversing	Mechanically interlocked	Reversing
		208V	240V	460/575V	NO	NC	Catalog number	Catalog number	Catalog number
		NEMA rated							
00	9	1.5	1.5	2	1	0	AL9N00-30-10-81	AL9N00M-10-81	AL9N00R-10-81
0	18	3	3	5	1	0	AL16N0-30-10-81	AL16N0M-10-81	AL16N0R-10-81
1	27	7.5	7.5	10	1	0	AL26N1-30-10-81	AL26N1M-10-81	AL26N1R-10-81

Coil voltage selection – AE contactors

All DC operated catalog numbers include a 24VDC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 125V coil is required for an AE75 contactor: AE75N3-30-11-**87**

Coil voltage selection – AF wide range AC/DC coils

All catalog numbers include a 100-250V AC/DC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 24V coil is required for a AF145 contactor: AF145N4-30-11-**72**

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.2. Add \$ 20 to list price for each additional auxiliary, and see page 1.32 for available combinations.

Mechanical interlock

Mechanically interlocked contactors are designed for reversing, 2 speed, reduced voltage, etc. type starter applications. The complete assembly consists of two mechanically and electrically interlocked contactors mounted as follows with line and load terminals:

- AE9 - AE16 — mounted on 35mm DIN rail
- AE26 - AE75 — mounted on common baseplate

Power wiring is not included.

For AE9 - AE75 contactors the NC electrical interlock is provided with the mechanical interlock.

Reversing

Reversing contactors are designed for reversing type starter applications. The complete assembly consists of two mechanically and electrically interlocked contactors mounted as follows with line and load terminals:

- AE9 - AE16 — mounted on 35mm DIN rail
- AE26 - AE75 — mounted on common baseplate

For AE9 - AE75 contactors the NC electrical interlock is provided with the mechanical interlock.

Coil voltage selection – AF50 to AF1650

AC/DC VOLTS, 40 - 60 Hz				
24 - 60 DC	20 - 60 DC	48 - 130 AC/DC	100 - 250 AC/DC	250 - 500 AC/DC
68 ①	72 ②	69	70 ④	71 ③

Coil voltage selection – AE & AL contactors

Hz	Contactor type	Volts						
		12	24	48	110	125	220	240
DC	AE, AL	—	81	83	86	87	88	89

① AF400 – AF750, DC only.
② AF50 – AF300, DC only.

③ AF400 - AF750 only.
④ Only option for AF1650.

A9 – A/AE75 , EK110 – EK1000, AL9 – AL26 AC & DC operated, UL rated, 4 pole

Across the line
contactors

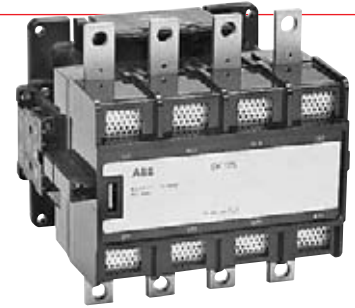
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A9-40-00



A75-40-00



EK175C4P-PL

4 Pole – 4 NO power poles

UL general purpose current		AC operated	DC operated
AC operated	DC operated	Catalog number	Catalog number
21	21	A9-40-00-84	AL9-40-00-81
30	30	A16-40-00-84	AL16-40-00-81
40	40	A26-40-00-84	AL26-40-00-81
65	65	A45-40-00-84	AE45-40-00-86
80	80	A50-40-00-84	AE50-40-00-86
105	105	A75-40-00-84	AE75-40-00-86
150	150	EK110C4P-1L	EK110C4P-PL
200	200	EK150C4P-1L	EK150C4P-PL
250	250	EK175C4P-1L	EK175C4P-PL
300	300	EK210C4P-1L	EK210C4P-PL
400	400	EK370C4P-1L	EK370C4P-PL
600	600	EK550C4P-1L	EK550C4P-PL
1000 ①	1000 ①	EK1000C4P-1L	EK1000C4P-PL

4 Pole – 4 NC power poles

UL general purpose current	AC operated
AC operated	Catalog number
30	A16-04-00-84

4 Pole – 2 NO & 2 NC power poles

UL general purpose current		AC operated	DC operated
AC operated	DC operated	Catalog number	Catalog number
21	21	A9-22-00-84	AL9-22-00-81
30	21	A16-22-00-84	AL16-22-00-81
40	30	A26-22-00-84	AL26-22-00-81
65	65	A45-22-00-84	AE45-22-00-86
105	105	A75-22-00-84	AE75-22-00-86

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. All DC operated catalog numbers include a 110VDC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 240V coil is required for an A75 contactor: A75-30-00-80

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.2. Add \$ 20 to list price for each additional auxiliary, and see page 1.32 for available combinations.

Accessories for EK

Please consult factory.

Coil voltage selection – A contactors

Hz	Contr.	Volts													
	type	12	24	48	110	120	125	208	220	240	277	380	415	440	480
60	A		81	83	84	84		34	36	80	42		86	86	51
50	A		81	83	84				80			85	86		55

For other voltages, see page 1.24.

Coil voltage selection – EK contactors

Hz	Contr.	Volts													
	type	24	48	110	120	125	208	220	240	277	380	415	440	480	500
60	EK	F	G		1		B		2	C	Z		3	4	6
50	EK	N		1			J				3	M			5
DC	EK	Y	W	P		Q		R					T		

- For other voltages, consult factory.
- 24 & 48VAC coils are not available for sizes EK550. For these applications, use an interposing control relay.

Coil voltage selection – AE & AL contactors

Hz	Contr.	Volts							
	type	12	24	48	110	125	220	240	
DC	AE, AL	–	81	83	86	87	88	89	

For other voltages, see page 1.24.

① Not UL Listed. IEC value AC1 for 40°C.

AF45 - AF75

AC & DC operated, UL rated, 4 pole

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.8. Add \$ 20 to the list price for each additional auxiliary and see page 1.32 for available combinations. If auxiliary contacts are required for AF50 – AF750 contactors, add \$ 40 to the list price and change the 8th & 9th digits in the catalog number from "00" to "11".

4 Pole – 4 NO power poles

General purpose	Auxiliary contacts		Catalog number
	NO	NC	
AC1			
65	0	0	AF45-40-00-70
80	0	0	AF50-40-00-70
105	0	0	AF75-40-00-70

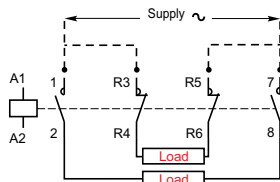
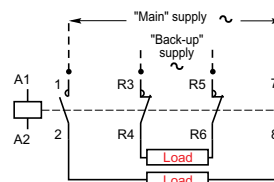
4 Pole – 2 NO - 2 NC power poles

General purpose	Auxiliary contacts		Catalog number
	NO	NC	
AC1			
65	0	0	AF45-22-00-70
105	0	0	AF75-22-00-70

These contactors (2 NO & 2 NC power poles) can be used for controlling either 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit comprising 2 separate loads with 1 single supply (see diagrams below).

When the contactor operates, there is no mechanical overlapping between the NO main poles and NC main poles: Break before Make.

These contactors (2 NO & 2 NC power poles) are not suitable for a reversing starter or a wye-delta starter or for controlling a single load from 2 separate supplies.

1 single supply and 2 separate loads**2 separate supplies and 2 separate loads****Coil voltage selection – wide range AC/DC coils**

All catalog numbers include a 100-250V AC/DC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Ex.: A 24V coil is required for a AF45 contactor: AF45-22-00-**72**

Coil voltage selection – AF50 to AF75

AC/DC VOLTS, 40 - 60 HZ			
24 - 60 DC	20 - 60 DC	48 - 130 AC/DC	100 - 250 AC/DC
68 ①	72 ②	69	70

① AF400 – AF750, DC only.

② AF50 – AF300, DC only.

UA26 – UA110

for 3 phase capacitor switching, 3 phase
AC operated

Across the line
contactors

1



UA75-30-00-84



UA95-30-00-84

Max kvar switching capacity			Standard auxiliary contacts		Catalog number
240V	480V	575/600V	NO	NC	
12.5	25	30	1	0	UA26-30-10-84
16	32	40	1	0	UA30-30-10-84
20	40	50	0	0	UA50-30-00-84
			1	1	UA50-30-11-84
27.5	55	70	0	0	UA75-30-00-84
			1	1	UA75-30-11-84
35	70	75	0	0	UA95-30-00-84
			1	1	UA95-30-11-84
40	80	85	0	0	UA110-30-00-84
			1	1	UA110-30-11-84

For 3 phase capacitors carrying out single bank or stepped bank compensation.
Max. peak current $\hat{I}$: 100 times the capacitor nominal r.m.s. current at $U_e \leq 500V$ or 90 times for $U_e > 500V$
Electrical durability: 100,000 operating cycles.

Power in kvar

Contactor	208V	240V	480V	600V	Max amps
UA26	3.5	4.0	8.0	10.0	10
UA30	7.0	8.0	16.5	20.5	20
UA50	10.5	12.5	25.0	31.0	30
UA75	21.5	25.0	50.0	62.0	60
UA95	25.0	29.0	58.0	72.0	70
UA110	28.5	33.0	66.0	83.0	80
A145	43	50	100	125	120
A185	57	66	133	166	160
A210	66	77	153	192	185
A260	75	87	174	218	210
A300	88	101	203	254	245
AF400	119	137	274	343	330
AF460	142	164	329	410	396
AF580	178	205	411	514	495
AF750	214	247	495	618	595

Coil voltage selection

All AC operated catalog numbers include a 120VAC coil. To select other coil voltages, substitute the code from the Coil Voltage Selection Chart for the two digits after the last dash in the catalog number.

Auxiliary contact blocks

For additional auxiliary contact blocks, see catalog number explanation on page 1.2. Add \$20 to list price for each additional auxiliary, and see page 1.32 for available combinations.

Coil voltage selection chart

		Volts															
Hz	Cntr type	12	24	48	110	120	125	208	220	240	277	380	415	440	480	500	600
60	A		81	83	84	84		34	36	80	42		86	86	51	53	55
50	A		81	83	84				80			85	86			55	

For other voltages, see page 1.24.

Accessories for A/AF/AL & AE contactors



CAL5-11



CA5-10

Auxiliary contact blocks – Standard

Positioning	Maximum number of contact blocks	Contact Description	Catalog
Front mounting (single pole)	4 blocks: A9 – A26 AE9 – AE26 AL9 – AL26	1 N.O. 1 N.C.	CA5-10 CA5-01
	5 blocks: A30, A40, AE30, AE40, AL30, AL40 6 blocks: A45 – A110 AE45 – AE110 AF45 – AF110	1 N.O. Early make 1 N.C. Late break	CC5-10 CC5-01
Front mounting (4 pole)	1 block: A9 – A26-40-00 A30 – A110 AE9 – AE110	4 N.O. 3 N.O. & 1 N.C. 2 N.O. & 2 N.C. 4 N.C. 2 N.O./2 N.C.①	CA5-40E CA5-31E CA5-22E CA5-04E CA5-11/11E
	1 block: A9 – A40-30-10 AL9 – AL40-30-10	3 N.O. & 1 N.C. 2 N.O. & 2 N.C. 1 N.O. & 3 N.C. 4 N.C. 4 N.O. 2 N.O./2 N.C.①	CA5-31M CA5-22M CA5-13M CA5-04M CA5-40N CA5-11/11M
Side mounting (2 pole)	2 blocks: A9 – A75, AE9-AE45 1 block: AE50 – AE75, AL9 – AL40	1 N.O. & 1 N.C.	CAL5-11
	1 block: A/AE/AF95 – A/AE/AF110	1 N.O. & 1 N.C.	CAL18-11
	2 blocks: A145 – A300, AF145-AF2050 2 blocks: A145 – A300, AF145-AF2050	1 N.O. & 1 N.C. (inside L or R) 1 N.O. & 1 N.C. (outside, L or R)	CAL18-11 CAL18-11B

Auxiliary contact blocks – Front mounting, switching low voltage and low current

Positioning	Maximum number of contact blocks	Contact Description	Degree of protection	Catalog
Front mounting (single pole)	4 blocks: A9 – A26 AE9 – AE26 AL9 – AL26	1 N.O. 1 N.C. 1 N.O. 1 N.C.	IP40 IP40 IP40 IP40	CE5-10D0.1 CE5-01D0.1 CE5-10D2 CE5-01D2
	5 blocks: A30, A40, AE30, AE40, AL30, AL40 6 blocks: A45 – A110 AE45 – AE110 AF45 – AF110	1 N.O. 1 N.C. 1 N.O. 1 N.C.	IP67 IP67 IP67 IP67	CE5-10W0.1 CE5-01W0.1 CE5-10W2 CE5-01W2

① Includes 1 N.O. & 1 N.C. overlapping

Accessories

Auxiliary contact block technical data

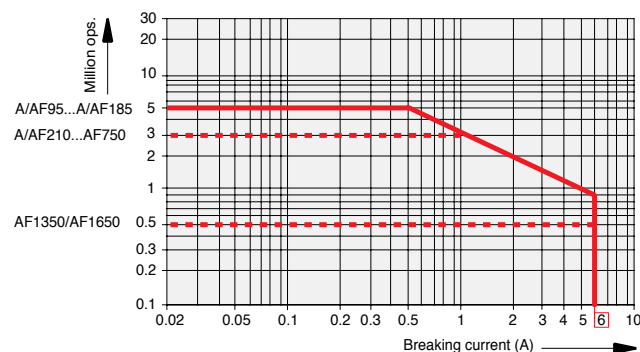
CA5/CAL5-11/CAL18-11/CC5

Across the line
contactors

1

Types			1-pole CA5, 4-pole CA5 2-pole CAL5-11 and 1-pole CC5		CAL18-11 CAL18-11B	
Standards			IEC 947-5-1 and EN 60947-5-1			
Rated insulation voltage U_i according to IEC 947-5-1			V	690	690	
according to UL/CSA			V	600	690	
Rated operational voltage U_e			~ V	24 to 690		
Conventional thermal current I_{th}			A	16		
Rated operational current I_e in AC-15 acc. to IEC 947-5-1			24 to 127 V	A	6	
			220 to 240 V	A	4	
			380 to 440 V	A	3	
			500 to 690 V	A	2	
in DC-13 acc. to IEC 947-5-1			24 V	A	6	
			48 V	A	2.8	
			72 V	A	1	
			125 V	A	0.55	
			250 V	A	0.3	
Connecting terminals (delivered in open position. Screws of unused terminals should be tightened).			M 3.5 (+,-) pozidriv 2 screw with cable clamp			
Connecting capacity						
• Rigid solid		1 or 2 x mm ²	1 to 4			
• Flexible with cable end		1 x mm ²	0.75 to 2.5			
		2 x mm ²	0.75 to 2.5			
Mechanical durability			cycles	10 million, A9 - A75;	5 million, A/AF95 - A/AF185; 3 million, A/AF210 - AF750; 0.5 million, AF1350 & AF1650	
Max. switching frequency			cycles/h	3600		
Electrical durability			See curve below			
Max. switching frequency			cycles/h	1200		
Rated making capacity			10 x I_e AC-15			
Rated breaking capacity			10 x I_e AC-15			
Rated short-time withstand current I_{cw}			1 s	A	100	
q = 40°C			0.1 s	A	140	
Min. switching capacity			17 V / 1 mA		24V / 50 mA	
Short-circuit protection - gG (gl) fuses			A	10		
Power loss per pole at 6 A			W	0.15		
Degree of protection according to IEC 529, IEC 144, DIN 40 050 and NFC 20-010			IP 20			

CAL18



Electrical durability

AC-15 according to IEC 947-5-1

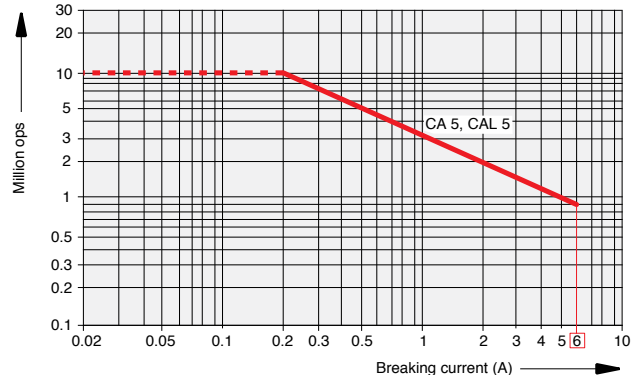
making current: 10 x I_e where $\cos \phi = 0.7$ and U_e

breaking current: I_e where $\cos \phi = 0.4$ and U_e

The curves opposite show the electrical durability of the auxiliary contact blocks according to breaking current I_e .

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

CA5, CAL5



Accessories

Auxiliary contact block technical data
CE5

Auxiliary contact blocks for switching low level voltage and current

Types		CE5-10D0.1 CE5-01D0.1 CE5-10W0.1 CE5-01W0.1 Version 100 mA	CE5-10DZ CE5-01DZ CE5-10WZ CE5-01WZ Version 2 A
Standards		IEC 947-5-1 and EN 60947-5-1	
Approvals		UL / CSA	
Rated insulation voltage U_i			
according to IEC 947-5-1	V	250	250
according to UL/CSA	V	125	250
Rated operational voltage U_e		125	250
Rated operational current I_e			
in AC-15 or AC-14 acc. to IEC 947-5-1	A	0.1	2
in DC-12 acc. to IEC 947-5-1	A	0.1	2
24 V	A	0.1	0.5
60 V	A	0.1	0.2
110 V	A	0.1	0.1
220 V	A	0.1	
Minimal switching		3 V / 1 mA	17 V / 1 mA
Reliability for the minimal switching		10 ⁻⁸	
Connecting terminals		M3.5 (+,-) posidriv 2 screw with cable clamp	
Connecting capacity		1 ou 2 (1...4) mm ² 1 ou 2 (0.75... 2.5) mm ²	
Short circuit protection		100 mA	10 A
Degree of protection			
according to IEC529, IEC 144, DIN 40 050, NFC 20-010	IP 20		
Mounting		Front mounting on contactors: A, AE, TAE9...110, AL, AF, GA, N, NE	
Dimensions		Identical to those of CA5 single pole	

Accessories for A/AF/AL & AE contactors

Across the line
contactors

1



TP40DA



VE5-1



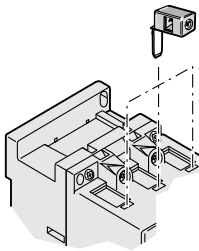
VM300H



LK75-L

LK75-F

LK110



Pneumatic timers

Mounting on	Timing range	Contacts N.O. N.C.		Catalog number
A9 – A75	On delay 0.1 – 40 s	1	1	TP40DA
AE9 – AE75	On delay 10 – 180 s	1	1	TP180DA
AL9 – AL40	Off delay 0.1 – 40 s	1	1	TP40IA
	Off delay 10 – 180 s	1	1	TP180IA

Interlocks for two horizontally mounted contactors – A9 - A110

Feature	Mounting on	Contacts N.O. N.C.		Catalog number
Mechanical/electrical	A/AE/AL9 – A/AE/AL40	–	2	VE5-1
Mechanical/electrical	A45 – A110	–	2	VE5-2 ①
Mechanical	A/AE/AL9 – A/AE/AL40	–	–	VM5-1

Interlocks for two horizontally mounted contactors – A95 - AF1250 contactors

Feature	Left contactors	Right contactors	Catalog number
Mechanical	A95 – A300	A145 – A300	VM300H
Mechanical	A210 – A300	AF400 – AF460	VM300/460H
Mechanical	AF400 – AF1250	AF400 – AF1250	VM750H

Interlocks for two vertically mounted contactors – A95 - AF1250 contactors

Feature	Top contactor	Bottom Contactor	Catalog number
Mechanical	A95 – A300	A145 – A300	VM300V
Mechanical	A210 – A300	AF400 – AF460	VM300/460V
Mechanical	AF400 – AF1250	AF400 – AF1250	VM750V

Interlocks for two horizontally mounted contactors – AF1350 - AF2050 contactors

Feature	Left contactor	Right Contactor	Catalog number
Mechanical	AF1350 – AF2050	AF1350 – AF2050	VM1650H

Auxiliary lead terminals

Connections	Mounting on	Catalog number
Connects from side	A50 – A75	LK75-L
Connects from top	A50 – A75	LK75-F
Connects from side	A95 – A110	LK110

① Use type VE 5-2 for mechanical and electrical interlocking between A30/A40 and A50 - A75 contactors.

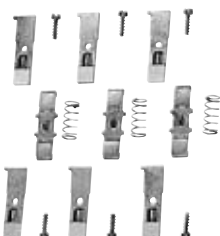
Accessories for A/AE/AL/AF contactors



ATK185



ATK750/3



ZL75



ZL145



WB75A-04



BA5-50

Terminal lug kits (Set of 3)

Wire range	For contactor	Catalog number
6 – 300 MCM	A145 – A185	ATK185
4 – 400 MCM	A210 – A300	ATK300
(2) 4-500 MCM	A210 – A300	ATK300/2
(2) 2/0 – 500 MCM	AF400 – AF580	ATK580/2
(3) 2/0 – 500 MCM	AF580 – AF1250	ATK750/3
(4) 4/0 – 500 MCM	AF1350	ATK1350/4
(4) 1/0 – 750 MCM	AF1350 – AF2050	ATK1650/4
(6) 1/0 – 750 MCM	AF1350 – AF2050	ATK1650/6

Contact kits

For contactors	Catalog number
3 Pole	
A/AE/AF50	ZL50
A/AE/AF63	ZL63
A/AE/AF75	ZL75
A/AE/AF95	ZL95
A/AE/AF110	ZL110
A/AF145	ZL145
A/AF185	ZL185
A/AF210	ZL210
A/AF260	ZL260
A/AF300	ZL300
AF400	ZL400
AF460	ZL460
AF580	ZL580
AF750	ZL750
AF1250	ZL1250
AF1350	ZL1350
AF1650	ZL1650
AF2050	ZL2050
4 Pole	
A/AE45	ZLT45
A/AE50	ZLT50
A/AE75	ZLT75
3 Pole	
UA50	ZLU50
UA75	ZLU75
UA95	ZLU95
UA110	ZLU110

Mechanical latches

For contactors	Catalog number
A9 – A75, AE45 – AE75, & AL9 – AL40	WB75A-Δ

Δ - Coil voltage suffix. Refer to Coil Voltage Selection chart and substitute the desired coil voltage suffix for the Δ.

Coil voltage selection chart – mechanical latches for A, AE & AL contactors

50 Hz (AC/DC)	60 Hz (AC)	Voltage code	50 Hz (DC)	60 Hz (AC)	Voltage code
24	24 – 28	01	220 – 230	220 – 255	06
42	42 – 48	02	230 – 240	230 – 277	05
48	48 – 55	03	380 – 415	380 – 440	07
110	110 – 127	04	415 – 440	440 – 480	08

Range: WB75A for contactors A9 – A75, AL9 – AL40, AE45 – AE75 and control relays N and NL.

Description: WB75A block: contains a mechanical latching device with electromagnetic impulse unlatching (AC or DC) or manual unlatching. Captive screw type connecting terminals, built-in cable clamps, M 3.5 (=, -) posidrive 1 screw with screwdriver guidance, delivered untightened and protected against accidental direct contact.

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

Contact opening can be controlled:

- Electrically by an impulse* (AC or DC) on the WB75A block coil. The coil is not designed to permanently energized.
- Manually by pressing the pushbutton on the front face of the WB75A block.

Mounting: WB75A is clipped onto the front face of the contactor.

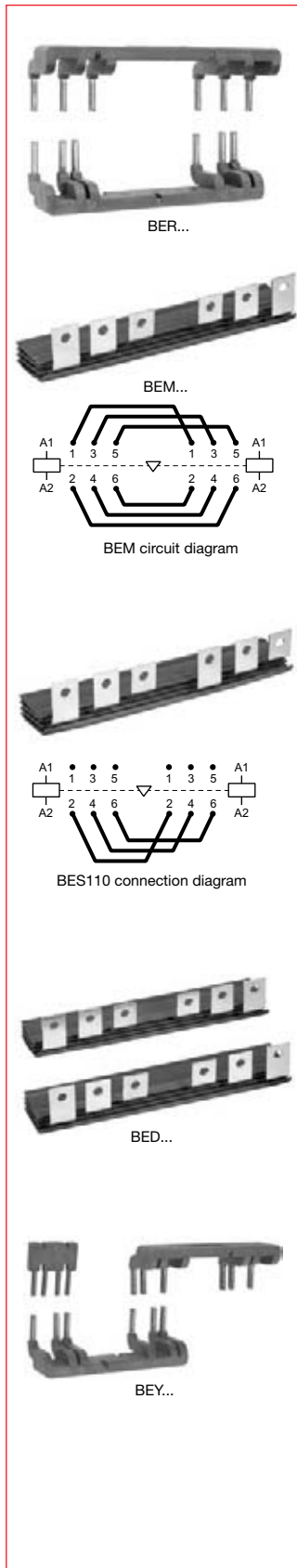
Identification markers

Mounting on	Coil voltage	Catalog number
A/AE/AL/AF9 – A/AE/AL/AF110	Pack of 50	BA5-50

Accessories for A/AE/AL/AF contactors

Across the line
contactors

1



Connection kits for reversing

Mounting on 3 pole contactors	Catalog number
A/AE/AL9 – A/AE/AL16 A/AE/AL26 – A/AE/AL40	BER16V BER40V
A/AE/AF50 – A/AE/AF75 A/AE/AF95, A/AE/AF110 A/AF145 – A/AF185 A/AF210 – A/AF300	BEM75-30 BEM110-30 BEM185-30 BEMA300-30
AF400 – AF460 AF580 – AF750	BEM460-30 BEM750-30

Application

Connections between the main poles of **two 3 pole contactors** mounted side by side so that they operate as reversing contactors.

Description

The connection kits for reversing contactors are made up of three reversing connections and three phase to phase connections.

- | | |
|------------------|-------------------------------------|
| BER16V | – Molded plastic, solid copper bars |
| BER40V | – Molded plastic, solid copper bars |
| BEM75 and 110-30 | – Insulated, solid copper bars |

Connection kits for phase to phase

Mounting on 3 pole contactors	Catalog number
A/AE/AF50, A/AE/AF95, A/AF145 – A/AF185 A/AF210 – A/AF300	BES75-30 BES110-30 BES185-30 BESA300-30
AF400 – AF460 AF580 – AF750	BES460-30 BES750-30

The connection kit for phase to phase contactors is made up of three phase to phase bus bars.

Connection kits for wye-delta starters

Mounting on contactors		Catalog number
Line and delta contactor	Wye contactor	
A9	A9	BEY16V-2
A12	A9	
A16	A12	
A26	A16	BEY26-2
A30	A26	BEY40-2
A40	A26	
A50	A30	BED50U
A63	A40	
A75	A50	BED75U
A95	A75	BED95U
A110	A95	BED110U
A145	A110	BED145U
A185	A145	BED185U
A210	A185	BED210U
A260/A300	A210	BED300U
AF400/AF460	A260/A300	BED400U
AF460	AF400	BED460U
AF580	AF400/AF460	BED580U
AF750	AF580	BED750U

Application

Connections between the main poles of a wye-delta starter.

Description

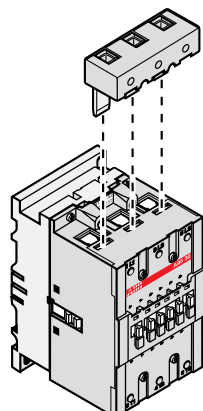
- The connection kits for wye-delta starters are made up of:
- Three line contactor/wye contactor connections – line side.
 - Three wye contactor/delta contactor connections – load side.
 - The shorting connection for the “S” contactor.

BEY16V-2, BEY26-2, BEY40-2 – Molded plastic, solid copper bars

BED50U thru BED750U – Insulated, solid copper bars.

The above connection sets allow a mechanical interlock unit to be mounted between the wye and delta contactors if required.

Accessories for A/AE/AL/AF contactors



LD110



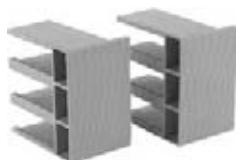
BEXT-75



LX...



LT185-AC



LT185-AL



LW...

Additional terminal blocks

Mounting on 3 pole contactors	Wire range	Catalog number
A/AE/AL9 – A/AE/AL16 (set of 2)	16 – 6	LD-16
A/AE/AL26 (set of 2)	14 – 6	LD-26
A/AE/AL30 – A/AE/AL40	12 – 4	LD-40
A/AE/AF50 – A/AE/AF75	10 – 2	LD-75
A/AE/AF95 – A/AE/AF110	8 – 1	LD-110

Utilization – The LD series terminal block is designed to increase the connection capacity of the contactor on which it is mounted. The LD 75 and LD110 terminal blocks are mounted in the three independent apertures located above the built-in connectors.

Terminal extensions

Mounting on contactors	Catalog number
A/AE/AF50 – A/AE/AF75 A/AE/AF95, A/AE/AF110 A/AF145 – A/AF185 A/AF210 – A/AF300	BEXT-75 LW110 LX185 LX300
AF400 – AF460 AF580 – AF750	LX460 LX750

Application

They are designed to increase the width of the contactor terminal pads to allow larger connectors to be mounted.

Description

Terminal extension sets contain 3 bars.

Terminal shrouds – two pieces

For contactor	Catalog number
A/AF145 – A/AF185 for flush mount A/AF145 – A/AF185 for extended mount A/AF145 – A/AF185 for shorting bar LY... between A(F)145 / A(F)185 & TA200DU A/AF210 – A/AF300 for flush mount A/AF210 – A/AF300 for extended mount A/AF210 – A/AF300 for shorting bar LY300	LT185-AC LT185-AL LT185-AY LT300-AC LT300-AL LT300-AY
AF400 – AF460 for flush mount AF400 – AF460 for extended mount AF580 – AF1250 for flush mount AF580 – AF1250 for extended mount	LT460-AC LT460-AL LT750-AC LT750-AL

Terminal enlargements

For contactor	Catalog number
A/AF95 – A/AF110 A/AF145 – A/AF185 A/AF210 – A/AF300 AF400 – AF460 AF580 – AF750 AF1250	LW110 LW185 LW300 LW460 LW750 LW1250

Arc chutes

For contactor	Catalog number
A/AF145 – A/AF185 A/AF210 – A/AF300 A/AF400 – A/AF460 A/AF580 – A/AF750 AF1350 – AF1650	ZW185 ZW300 ZW460 ZW750 ZW1650

Accessories for A/AE/AF contactors

Across the line
contactors

1



BEA185/S3/S4



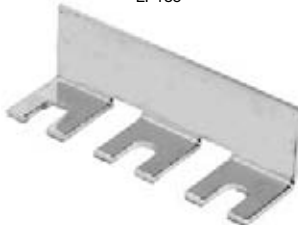
BEAD185D/S3/S4



BEA185H/S4



LP185



LY...

Vertical connection bars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number
T1	A/AE/AF50 – A/AE/AF75	BEA75/T1
T3	A/AE/AF95 – A/AE/AF110	BEA110/T3
T3	A/AF145 – A/AF185	BEA185/T3
S3, S4	A/AF145 – A/AF185	BEA185/S3/S4
T4	A/AF145 – A/AF185	BEA185/T4
T4	A/AF210 – A/AF300	BEA210/T4
T5	A/AF210 – A/AF300	BEA300/T5
T5	A/AF400 – A/AF750	BEA750/T5
S5	A/AF210 – A/AF300	BEA300/S5
S5 ^①	AF400 – AF460	BEA400/S5
S6	AF400 – AF750	BEA750/S6

Vertical connection bars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number
S3, S4	A/AF145 – A/AF185	BEA185D/S3/S4
S4	A/AF210 – A/AF300	BEA210D/S4
S5	A/AF210 – A/AF300	BEA300D/S5
S5	AF400 – AF460	BEA400D/S5
S6	AF400 – AF750	BEA750D/S6

To be used when power take off is needed (IP00) or with other bus bars. (EX: Reversing, IP20)

Horizontal connection busbars between contactor and MCCB – three bars

MCCB	For contactor	Catalog number
S3, S4	A/AF145 – A/AF185	BEA185H/S4
S4	A/AF210 – A/AF300	BEA210H/S4
S5	A/AF210 – A/AF300	BEA300H/S5
S5	AF400 – AF460	BEA400H/S5
S6	AF400 – AF460	BEA460H/S6
S6	AF580 – AF750	BEA750H/S6

Shorting bars, 2 pole

For contactor	Catalog number
A/AF145 – A/AF185	LP185
A/AF210 – A/AF300	LP300
AF400 – AF460	LP460
AF580 – AF750	LP750

Shorting bars, 3 pole

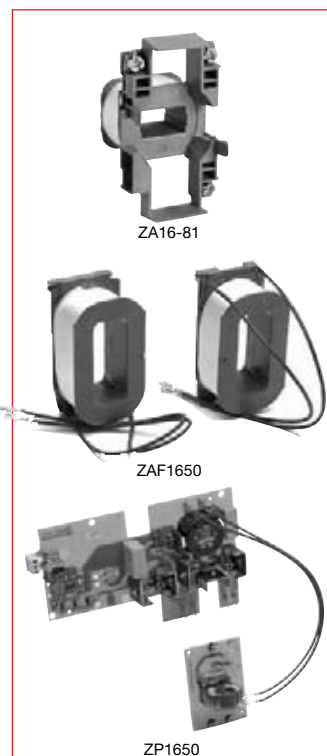
For contactor	Catalog number
A/AE45 – A/AE/AF75	LF75
A/AE/AF95 – A/AE/AF110	LY110
A/AE/AF145 – A/AE/AF185	LY185
A/AE/AF210 – A/AE/AF300	LYA300
AF400 – AF460	LY460
AF580 – AF750	LY750

① Not for use with flange handles.

Accessories

for A/AE/AL/AF contactors

Coils & coil voltage codes



Coils – AC operated

For contactors	Catalog number
A9 – A16	ZA16-Δ
A26 – A40	ZA40-Δ
A45 – A75	ZA75-Δ
A95 – A110	ZA110-Δ
A145 – A185	ZA185-Δ
A210 – A300	ZA300-Δ

Coils – DC operated

AE9 – AE16	ZAE16-Δ
AE26 – AE40	ZAE40-Δ
AE45 – AE75	ZAE75-Δ
AE95 – AE110	ZAE110-Δ
Auxiliary including an insertion contact and a varistor for DC operated contactors	CCL18-01

Coils – AC/DC operated (coil and printed circuit board except ZAF1650)

AF45 – AF75	ZAF75-Δ
AF95, AF110	ZAF110-Δ
AF145 – AF185	ZAF185-Δ
AF210 – AF300	ZAF300-Δ
AF400, AF460	ZAF460-Δ
AF580, AF750, AF1250	ZAF750-Δ
AF1350, AF2050 (Set of 2 coils only)	ZAF1650-Δ

Printed circuit board – AC/DC operated

AF1350 – AF2050	ZP1650
-----------------	--------

Δ – Coil voltage suffix. Refer to Coil Voltage Selection charts below and substitute the desired coil voltage code for the Δ.

Coil voltage selection – AC operated

for A9 – A300; UA26 – UA110

VAC (50Hz)	VAC (60Hz)	Voltage Code
24	24	81
26	28	16
28	32	17
42	42	82
48	48	83
60	60	73
100	100 – 110	74 ②
110	110 – 120	84
110 – 115	115 – 127	89 ③
120	140	29
125 – 127	150	30
175	208	34
190	220	36
200	200 – 220	75 ②
220 – 230	230 – 240	80
230 – 240	240 – 260	88
230 – 240	277	42
230/400	–	62 ①
–	230/400	63 ①
380 – 400	400 – 415	85
400 – 415	415 – 440	86
–	480	51
440	500	53
500	600	55
550	–	56
660 – 690	–	58

Coil voltage selection – DC operated for AE contactors

VDC	Voltage code AE contactors
12	80
24	81
42	82
48	83
50	21
60	84
75	85
110	86
125	87
220	88
240	89
250	38

Coil voltage selection – AC/DC operated for AF50 – AF2050

VAC & VDC 40-60 Hz	Suffix Code
24 – 60 VDC	68 ④
20 – 60 VDC	72 ⑤
48 – 130 VAC/VDC	69
100 – 250 VAC/VDC	70 ⑦
250 – 500 VAC/DC	71 ⑥

- ① Only for A9 – A16.
 ② Not for A145 – A300
 ③ A145 – A300 at 60 Hz, 115V only
 ④ AF400 – AF1250, DC only
 ⑤ AF45 – AF300
 ⑥ AF400 – AF750 only
 ⑦ Only option for AF2050 – AF1650

Accessories for EK contactors Coils & coil voltage codes

Across the line
contactors

1

Coils – AC & DC operated

Contactor size	AC Coils	DC Coils
	Catalog number	Catalog number
EK110, EK150 EK175, EK210 EK370, EK550	KH210-Δ KH300-Δ KH800-Δ	KH210-Δ KH300-Δ KH800-Δ

Δ – Coil voltage suffix. Refer to the Coil Voltage Selection chart and substitute the desired coil voltage suffix for the Δ. AC and DC operated contactors DO NOT have the same magnet structure. Therefore, DC coils will not fit on an AC magnet structure and vice versa.

Coil voltage selection – AC operated for EK110 – EK550

VAC (50Hz)	VAC (60Hz)	Voltage Code
–	24	F
24	–	N
–	48	G
110	120	1
–	208	B
–	240	2
220 – 230	–	J
–	380	Z
380 – 400	440	3
400 – 415	–	M
–	480	4
500	–	5
–	600	6

Consult factory if other voltages are required.

Coil voltage selection – DC operated for EK110 – EK550

VDC	Voltage Code
24	Y
48	W
110	P
125	Q
220	R
440	T

Consult factory if other voltages are required.