



Short form catalogue

# Motor protection and control Block contactors and overload relays

# Motor rated operational powers and currents

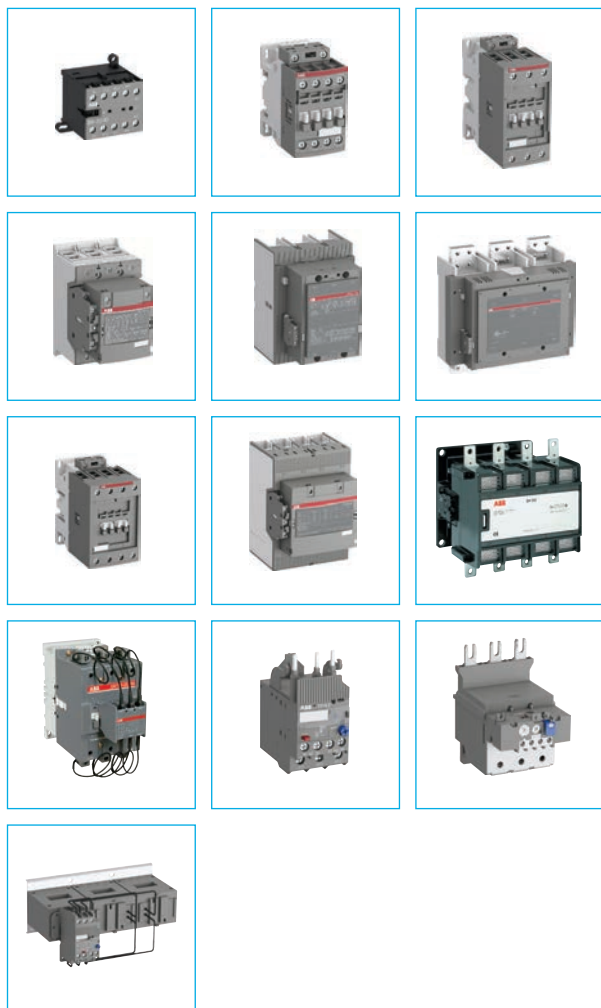
The currents given below concern standard three-phase four-pole cage motors (1500 r.p.m. at 50 Hz 1800 r.p.m. at 60 Hz). These values are given for guidance and may vary according to the motor manufacturer and depending on the number of poles.

IEC	Motor nominal current: <b>standardized values in blue colour</b> (according to IEC 60947-4-1 Annex G)									
Motor power kW	220 V A	230 V A	240 V A	380 V A	400 V A	415 V A	440 V A	500 V A	660 V A	690 V A
0.06	0.37	0.35	0.34	0.21	0.2	0.19	0.18	0.16	0.13	0.12
0.09	0.54	0.52	0.50	0.32	0.3	0.29	0.26	0.24	0.18	0.17
0.12	0.73	0.7	0.67	0.46	0.44	0.42	0.39	0.32	0.24	0.23
0.18	1	1	1	0.63	0.6	0.58	0.53	0.48	0.37	0.35
0.25	1.6	1.5	1.4	0.9	0.85	0.82	0.74	0.68	0.51	0.49
0.37	2.0	1.9	1.8	1.2	1.1	1.1	1	0.88	0.67	0.64
0.55	2.7	2.6	2.5	1.6	1.5	1.4	1.3	1.2	0.91	0.87
0.75	3.5	3.3	3.2	2.0	1.9	1.8	1.7	1.5	1.15	1.1
1.1	4.9	4.7	4.5	2.8	2.7	2.6	2.4	2.2	1.7	1.6
1.5	6.6	6.3	6	3.8	3.6	3.5	3.2	2.9	2.2	2.1
2.2	8.9	8.5	8.1	5.2	4.9	4.7	4.3	3.9	2.9	2.8
3	11.8	11.3	10.8	6.8	6.5	6.3	5.7	5.2	4	3.8
4	15.7	15	14.4	8.9	8.5	8.2	7.4	6.8	5.1	4.9
5.5	20.9	20	19.2	12.1	11.5	11.1	10.1	9.2	7	6.7
7.5	28.2	27	25.9	16.3	15.5	14.9	13.6	12.4	9.3	8.9
11	39.7	38	36.4	23.2	22	21.2	19.3	17.6	13.4	12.8
15	53.3	51	48.9	30.5	29	28	25.4	23	17.8	17
18.5	63.8	61	58.5	36.8	35	33.7	30.7	28	22	21
22	75.3	72	69	43.2	41	39.5	35.9	33	25.1	24
30	100	96	92	57.9	55	53	48.2	44	33.5	32
37	120	115	110	69	66	64	58	53	40.8	39
45	146	140	134	84	80	77	70	64	49.1	47
55	177	169	162	102	97	93	85	78	59.6	57
75	240	230	220	139	132	127	116	106	81	77
90	291	278	266	168	160	154	140	128	97	93
110	355	340	326	205	195	188	171	156	118	113
132	418	400	383	242	230	222	202	184	140	134
160	509	487	467	295	280	270	245	224	169	162
200	637	609	584	368	350	337	307	280	212	203
250	782	748	717	453	430	414	377	344	261	250
315	983	940	901	568	540	520	473	432	327	313
355	1109	1061	1017	642	610	588	535	488	370	354
400	1255	1200	1150	726	690	665	605	552	418	400
500	1545	1478	1416	895	850	819	745	680	515	493
560	1727	1652	1583	1000	950	916	832	760	576	551
630	1928	1844	1767	1116	1060	1022	929	848	643	615
710	2164	2070	1984	1253	1190	1147	1043	952	721	690
800	2446	2340	2243	1417	1346	1297	1179	1076	815	780
900	2760	2640	2530	1598	1518	1463	1330	1214	920	880
1000	3042	2910	2789	1761	1673	1613	1466	1339	1014	970

UL / CSA	Motor nominal current: <b>standardized values</b> (according to IEC 60947-4-1 Annex G and UL 508)				
Motor power hp	208 V A	220-240 V A	380-415 V A	440-480 V A	550-600 V A
1/2	2.4	2.2	1.3	1.1	0.9
3/4	3.5	3.2	1.8	1.6	1.3
1	4.6	4.2	2.3	2.1	1.7
1-1/2	6.6	6	3.3	3	2.4
2	7.5	6.8	4.3	3.4	2.7
3	10.6	9.6	6.1	4.8	3.9
5	16.7	15.2	9.7	7.6	6.1
7-1/2	24.2	22	14	11	9
10	30.8	28	18	14	11
15	46.2	42	27	21	17
20	59.4	54	34	27	22
25	74.8	68	44	34	27
30	88	80	51	40	32
40	114	104	66	52	41
50	143	130	83	65	52
60	169	154	103	77	62
75	211	192	128	96	77
100	273	248	165	124	99
125	343	312	208	156	125
150	396	360	240	180	144
200	528	480	320	240	192
250	—	604	403	302	242
300	—	722	482	361	289
350	—	828	560	414	336
400	—	954	636	477	382
450	—	1030	—	515	412
500	—	1180	786	590	472

# Block contactors

## Index



## Contents

AF features & benefits	4
<b>3 pole contactors</b>	
Overview	10
AF09 - AF96 3 pole contactors	12
AF116 - AF370 3 pole contactors	17
AF400 - AF2650 3 pole contactors	20
<b>4 pole contactors</b>	
Overview	24
AF09 - AF80 4 pole contactors	26
AF116 - AF370 4 pole contactors	31
EK550 - EK1000 4 pole contactors	34
<b>Variations</b>	
DC switching contactors	36
Capacitor switching contactors	38
Contactors relays	39
Mini contactors & overload relays	42
<b>Overload relays</b>	
Overview	44
TF42 - TA200DU thermal overload relays	46
EF19 - EF1250DU electronic overload relays	48



Full range of product and technical information place this part number in a search engine and download 1SBC100192C0201

# ABB sets a new standard in motor control and power switching

Featuring AF technology as standard, the latest range of ABB's contactors establishes a new industry benchmark. The electronically controlled coil offers multiple benefits over conventional alternatives, and together with ABB's wide product offering – an optimal configuration, every time.



## Access Global Support

The contactor and motor protection range from ABB is compatible with all major national and international standards and is available worldwide via a global distribution network. One contactor coil now handles 100 V – 250 V, AC/DC for use in Europe or Asia as well as North America.



## Simplify design

By reducing contactor coil energy consumption by up to 80%, panels can be built smaller and transformers more compact. All the features of the AF technology, along with access to drawings and coordination tables online, simplifies your design and assembly process.



## Optimize logistics

With its contactor and motor protection range, ABB has managed to reduce the number of contactor coils to just four. The total number of product variants has been reduced by up to 90%. This simplifies the customers' logistics and cuts administration costs.



## Secure uptime

Time to prevent stoppages caused by voltage fluctuations. The AF contactor ensures distinct operation in unstable networks and signifies a major advance in motor control and power switching. Voltage sags, dips and surges pose no threat. The AF contactor secures your uptime.





## MacGregor. Keeping turnarounds brief.

Until the AF range was installed, voltage sags were affecting MacGregor's deck cranes. Conventional contactors welded shut, leading to several stoppages a week. No longer. Known for superior quality and an ability to operate in the most hostile environments, MacGregor deck cranes enjoy a global reputation for reliability. A small but vital component, the AF contactor helps maintain this reputation.

To keep things moving, you need Control. Connect to Control.

Explore all our case studies at [www.abb.com/connecttocontrol](http://www.abb.com/connecttocontrol)

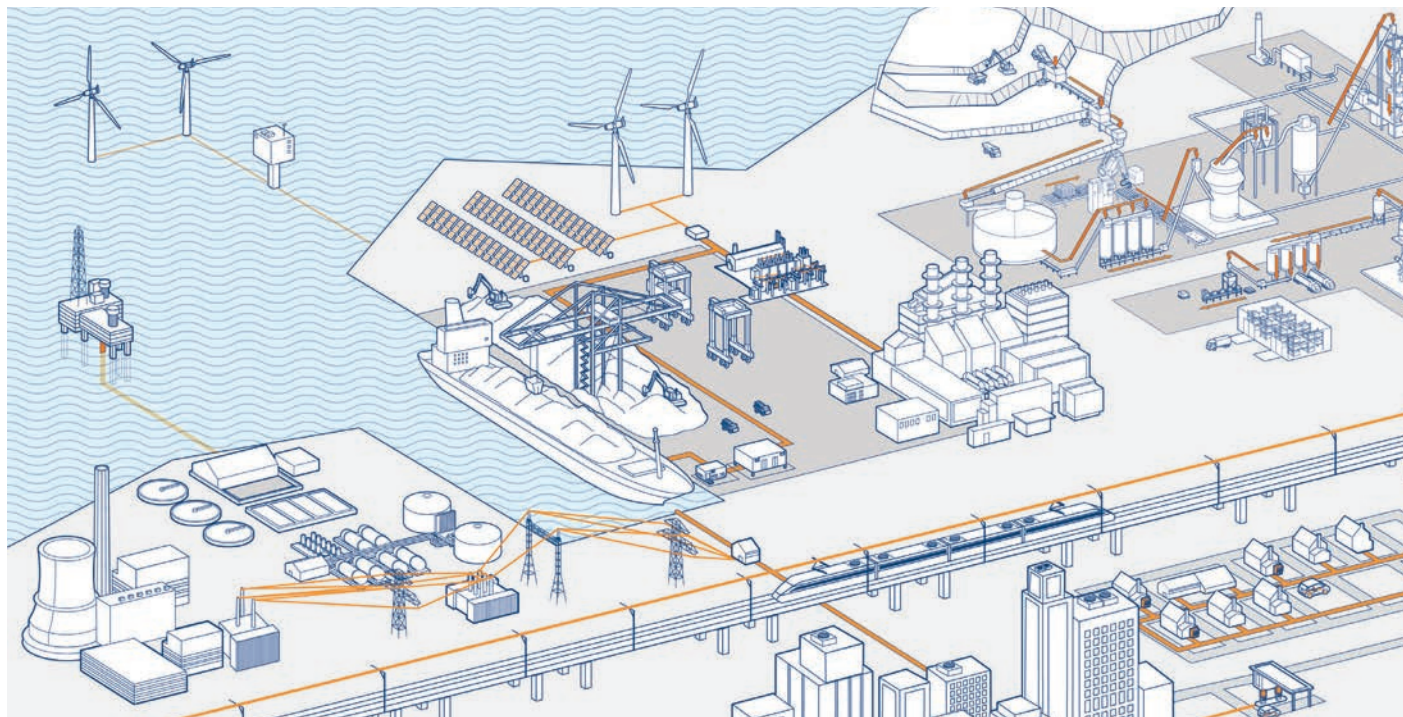
SSAB  
Making certainty  
standard

Gamesa  
Taming the wind

LKAB  
Providing fresh air

# Contactors and motor protection

## For a wide variety of segments



HVAC, General Machinery, Rail, Critical Power, Wind, Solar, Marine and Water & Wastewater

### Contactors for any use

The AF contactor range covers small motor starting solutions from 4 kW / 5 hp up to big power switching solutions with our unique AF2650, the biggest single case block contactor in the world.

The contactor and motor protection range is part of one of the widest product offerings on the market meaning that ABB not only can provide the contactor but the full solution.

In addition to the standard product range ABB also offer products for special needs such as Bar contactors, GAF and contactors for capacitor switching.

### Cooperating with customers

ABB cooperates closely with its customers to ensure that products meet requirements from their specific segments and applications. With over 100 years' experience in motor control and power switching ABB knows how to create efficient solutions for its customers.

# AF technology

## Benefits

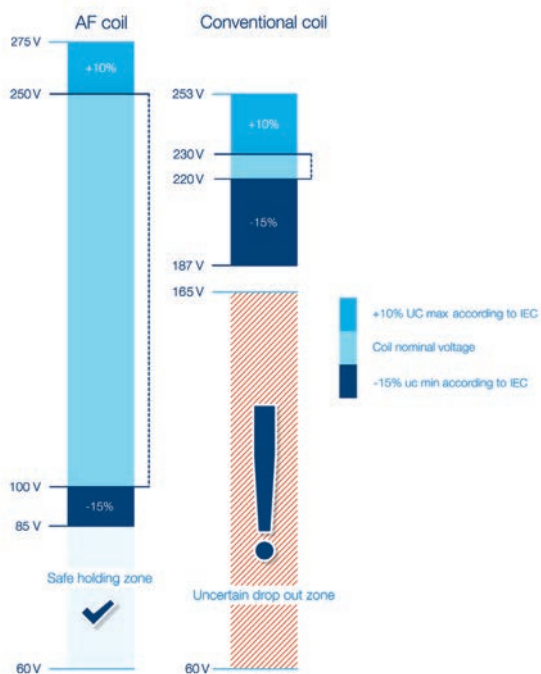


### Reliable in all networks

The electronic system within the AF contactor rectifies the AC or DC control circuit voltage to a DC control voltage that is applied on the coil. The contactor is safely operated in an always optimized condition making it virtually noise free.

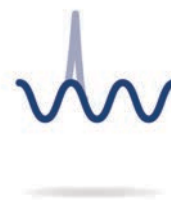
### Four coils for the entire voltage range

The AF contactor features both AC and DC support. With the complete AF contactor range, functionality is improved. Still, the total number of product variants compared to a conventional range is reduced by 90 %. Only four coils are required to cover 24 V AC, 20 V DC - 500 V AC/DC.



### Wide control voltage range

With conventional contactor technology, different contactors were needed for different network voltages. Thanks to the wide operating range of the AF contactor it can operate just as well in Europe as in Asia or North America. The core coil of the AF contactor range covers 100-250 V AC/DC 50/60 Hz.



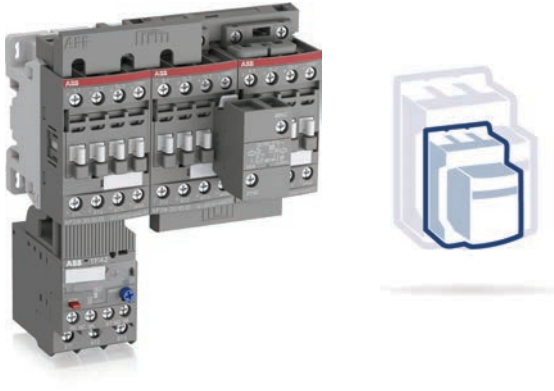
### Built-in surge suppression

With conventional contactor technology it is recommended to use an external surge suppressor, an accessory that could cost as much as half the contactor itself. With the AF technology the surges are handled by the contactor itself and the surge never reaches the control circuit. Neither the surge suppressor nor the actual surge has to be considered anymore. One less product and one less complication to worry about.



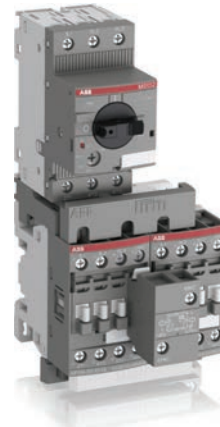
# Contactors and motor protection

## Advanced but simple



### The AF contactor is compact

The AF contactor is compact in size and has had its width reduced by up to 30 % thanks to an 80 % reduction of the coil's energy consumption.



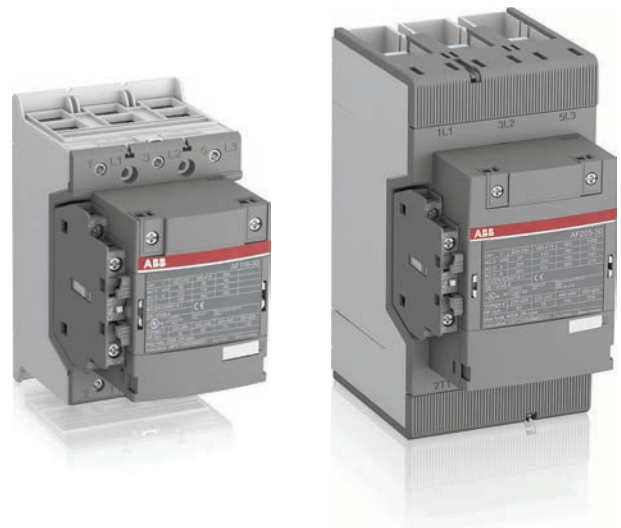
### The AF contactor is flexible

AF09 ... AF370 is perfect for motor starting applications and for solutions where space is limited. Interlocked reversing pairs require no spacing between contactors meaning you can fit more functionality into cabinets or other small enclosures.



### Coil terminal access in the front

The AF contactor has its coil terminals accessible from the front. The cables or bars do not have to be disconnected in order to perform voltage measurement or servicing work.



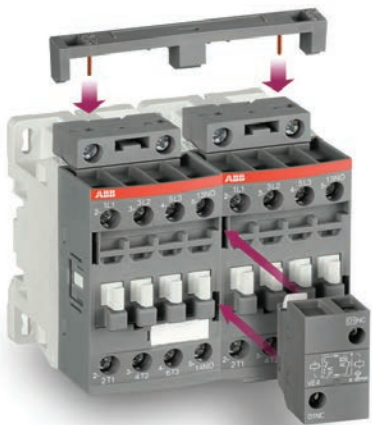
### More functionality without adding width

The AF116 ... AF2650 can take up to 2 side mounted auxiliary contact blocks without adding to its width and are delivered with 1 N.O. + 1 N.C. as standard.



# Contactors and motor protection

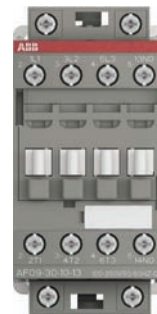
## Mechanical features



Top-mounted



Bottom-mounted



Additional LDC4  
coil terminal block



Front-mounted

### Easy-to-use accessories

Contactors up to 96 A offer free choice of coil terminal access and can take side and front mounted auxiliary contact blocks. All the accessories: Coil connection terminals, mechanical and electrical interlocks and electronic timers are easily connected through the snap-to-connect function.



### Safe control circuit with:

- Mirror contact according to IEC 60947-4-1
- Mechanically linked contacts according to IEC 60947-5-1
- Sealable and transparent protective covers on AF09 ... AF96 and overload relays TF/EF

# 3-pole contactor overview

## Mini contactors



## Contactors for motor control and power switching



IEC (1)	AC-3 Rated operational power	≤ 60 °C (2), 400 V	kW	4	5.5	4	5.5	7.5	4	5.5	7.5	11	15	18.5
UL/CSA	3-phase motor rating	480 V	hp	3	5	5	7.5	10	5	7.5	10	15	20	25
AC / DC Control supply			Type	—	—	—	—	—	AF09	AF12	AF16	AF26	AF30	AF38
AC Control supply			Type	B6	B7	AS09	AS12	AS16	AF09	AF12	AF16	AF26	AF30	AF38
DC Control supply			Type	BC6	BC7	ASL09	ASL12	ASL16	AF09	AF12	AF16	AF26	AF30	AF38
IEC	AC-3 Rated operational current	≤ 60 °C (2), 400 V	A	8.5	11.5	9	12	15.5	9	12	18	26	32	38
	AC-1 Rated operational current	≤ 40 °C, 690 V	A	20 (400 V)	20 (400 V)	22	24	24	25	28	30	45	50	50
UL/CSA	General use rating	600 V	A	12 (300 V)	16	20	20	20	25	28	30	45	50	50
NEMA	NEMA Size			—	—	00	00	0	00	0	—	1	—	—

<sup>(1)</sup> 1000 V IEC ratings available for AF146 ... AF2650 contactors.

<sup>(2)</sup> ≤ 55 °C for mini contactors and AF400 ... AF2650 contactors.

## Main accessories

Auxiliary contact blocks	Front mounting	CAF6	CA3-10 (1 x N.O.) CA3-01 (1 x N.C.)	CA4-10 (1 x N.O.) CA4-01 (1 x N.C.)
	Side mounting	CA6	CAL4-11 (1 x N.O. + 1 x N.C.)	
Timers	Electronic	TEF3-ON TEF3-OFF		TEF4-ON TEF4-OFF
Interlocking units <sup>(3)</sup>	Mechanical	VM3		VM4
	Mechanical / Electrical			VEM4
Connection sets	For reversing contactors	BSM6-30	BER16C-3	BER16-4      BER38-4
Surge suppressors	Varistor (AC/DC)	RV-BC6	RV5 (24...440 V)	Built-in surge protection
	RC type (AC)		RC5-1 (24...440 V)	
	Transil diode (DC)	RD7	RT5 (12...264 V)	

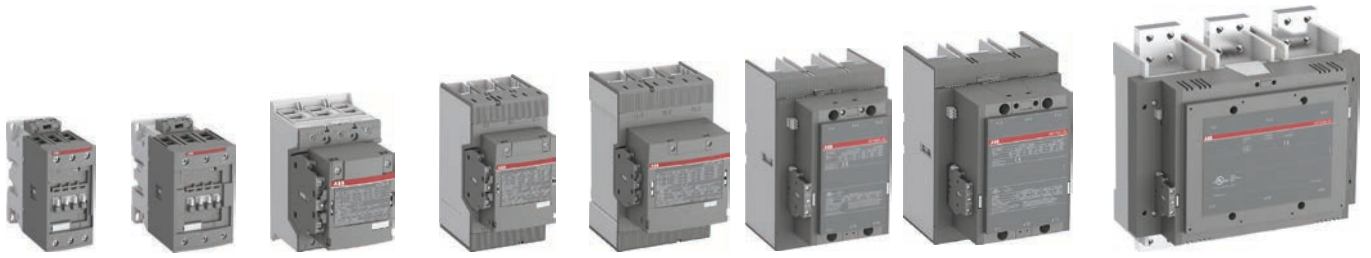
<sup>(3)</sup> See available reversing contactors VB6, VB7 and VAS09 ... VAS16.

## Overload relays

Thermal relays		Class 10 (Class 10A for TF140, TA200DU)	T16 (0.10...16 A)	T16 (0.10...16 A)	TF42 (0.10...38 A)
Electronic relays		Class 10E, 20E, 30E	E16DU (0.10...18.9 A)		EF19 (0.10...18.9 A) EF45 (9...45 A)

## Manual motor starters

	Thermal / magnetic protection Class 10	MS116 (0.10...32 A) Ics up to 50 kA for class 10A	MS116 (0.10...32 A) Ics up to 50 kA for class 10 A	MS450 (28...50 A) Ics up to 50 kA
		MS132 (0.10...32 A) Ics up to 100 kA	MS132 (0.10...32 A) Ics up to 100 kA	MS497 (22...100 A) Ics up to 100 kA
		M0132 (0.16...32A)	M0132 (0.16...32 A) Ics up to 100 kA	
Magnetic only types				
Accessories	For contactor mounting	BEA7/132	BEA16-3	BEA16-4      BEA38-4



18.5	22	30	37	45	55	75	75	90	110	132	160	200	200	250	315	400	—	475	560	—	—
30	40	50	60	60	75	100	100	125	150	200	250	300	350	400	500	600	—	800	900	—	—
AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
AF40	AF52	AF65	AF80	AF96	AF116	AF140	AF146	AF190	AF205	AF265	AF305	AF370	AF400	AF460	AF580	AF750	AF1250	AF1350	AF1650	AF2050	AF2650
40	53	65	80	96	116	140	146	190	205	265	305	370	400	460	580	750	—	860	1050	—	—
70	100	105	125	130	160	200	225	275	350	400	500	600	600	700	800	1050	1260	1350	1650	2050	2650
60	80	90	105	115	160	200	200	250	300	350	400	520	550	650	750	900	1210	1350	1650	2100	2700
2	—	—	3	—	—	4	—	—	—	5	—	—	—	6	—	7	—	—	8	—	—

		CAL19-11 (1 x N.O. + 1 x N.C.)				CAL18-11 (1 x N.O. + 1 x N.C.)				
VM96-4		VM19 (for same size contactors)				VM750H VM750V				VM1650H
BER65-4	BER96-4	BER140-4	BER205-4	BER370-4	BEM460-30	BEM750-30				

TF65 (22...67 A)	TF96 (40...96 A)	TF140DU (66...142 A) ≤ 55 °C	TA200DU (66...200 A) ≤ 55 °C					
EF65 (20...70 A)	EF96 (36...100 A)	EF146 (54...150 A)	EF205 (63...210 A)	EF370 (115...380 A)	EF460 (150...500 A)	EF750 (250...800 A)	E1250DU (375...1250 A)	

### Short-circuit protection devices

MS495 (45...100 A) lcs up to 50 kA	
M0496 (32...100 A) lcs up to 100 kA	MCCB and switch-fuses
M0450 (40...50 A) lcs up to 50 kA	M0495 (63...100 A) lcs up to 50 kA





# AF09 ... AF38 3 pole contactors

## 4 to 18.5kW AC/DC operated



AF09-30-10





AF26-30-00

### Description

AF09 ... AF38 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

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

IEC Rated operational power 400 V AC-3 kW	UL/CSA 3-phase motor rating 480 V AC-1 A	General use rating 600 V AC hp	General use rating A	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number <sup>(1)</sup>	Product Hierarchy 170009 Order Code
				V 50/60 Hz	V DC				
4	25	5	25	24...60	20...60	1	0	AF09-30-10-11	1SBL137001R1110
						0	1	AF09-30-01-11	1SBL137001R1101
				48...130	48...130	1	0	AF09-30-10-12	1SBL137001R1210
						0	1	AF09-30-01-12	1SBL137001R1201
				100...250	100...250	1	0	AF09-30-10-13	1SBL137001R1310
						0	1	AF09-30-01-13	1SBL137001R1301
				250...500	250...500	1	0	AF09-30-10-14	1SBL137001R1410
						0	1	AF09-30-01-14	1SBL137001R1401
5.5	28	7.5	28	24...60	20...60	1	0	AF12-30-10-11	1SBL157001R1110
						0	1	AF12-30-01-11	1SBL157001R1101
				48...130	48...130	1	0	AF12-30-10-12	1SBL157001R1210
						0	1	AF12-30-01-12	1SBL157001R1201
				100...250	100...250	1	0	AF12-30-10-13	1SBL157001R1310
						0	1	AF12-30-01-13	1SBL157001R1301
				250...500	250...500	1	0	AF12-30-10-14	1SBL157001R1410
						0	1	AF12-30-01-14	1SBL157001R1401
7.5	30	10	30	24...60	20...60	1	0	AF16-30-10-11	1SBL177001R1110
						0	1	AF16-30-01-11	1SBL177001R1101
				48...130	48...130	1	0	AF16-30-10-12	1SBL177001R1210
						0	1	AF16-30-01-12	1SBL177001R1201
				100...250	100...250	1	0	AF16-30-10-13	1SBL177001R1310
						0	1	AF16-30-01-13	1SBL177001R1301
				250...500	250...500	1	0	AF16-30-10-14	1SBL177001R1410
						0	1	AF16-30-01-14	1SBL177001R1401
11	45	15	45	24...60	20...60	0	0	AF26-30-00-11	1SBL237001R1100
				48...130	48...130	0	0	AF26-30-00-12	1SBL237001R1200
				100...250	100...250	0	0	AF26-30-00-13	1SBL237001R1300
				250...500	250...500	0	0	AF26-30-00-14	1SBL237001R1400
				24...60	20...60	0	0	AF30-30-00-11	1SBL277001R1100
15	50	20	50	48...130	48...130	0	0	AF30-30-00-12	1SBL277001R1200
				100...250	100...250	0	0	AF30-30-00-13	1SBL277001R1300
				250...500	250...500	0	0	AF30-30-00-14	1SBL277001R1400
				24...60	20...60	0	0	AF38-30-00-11	1SBL297001R1100
18.5	50	25	50	48...130	48...130	0	0	AF38-30-00-12	1SBL297001R1200
				100...250	100...250	0	0	AF38-30-00-13	1SBL297001R1300
				250...500	250...500	0	0	AF38-30-00-14	1SBL297001R1400

<sup>(1)</sup> For other auxiliary contacts arrangements, please contact your ABB local sales organization.

# AF09Z ... AF38Z 3 pole contactors

## 4 to 18.5kW AC/DC operated - low consumption



AF09Z-30-10





AF26Z-30-00

### Description

AF09Z ... AF38Z contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations
  - allow direct control by PLC-output  $\geq 24$  V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC		UL/CSA		Rated control circuit voltage		Auxiliary contacts fitted		Part Number <sup>(1)</sup>	Product Hierarchy 1700009 Order Code
Rated operational power	current $\leq 40$ °C	3-phase motor rating	General use rating	Uc min. ... Uc max.					
400 V AC-3 kW	AC-1 A	hp	A	V 50/60 Hz	V DC				
4	25	5	25	-	12...20	1	0	AF09Z-30-10-20	1SBL136001R2010
						0	1	AF09Z-30-01-20	1SBL136001R2001
						1	0	AF09Z-30-10-21	1SBL136001R2110
						0	1	AF09Z-30-01-21	1SBL136001R2101
						1	0	AF09Z-30-10-22	1SBL136001R2210
						0	1	AF09Z-30-01-22	1SBL136001R2201
						1	0	AF09Z-30-10-23	1SBL136001R2310
						0	1	AF09Z-30-01-23	1SBL136001R2301
5.5	28	7.5	28	-	12...20	1	0	AF12Z-30-10-20	1SBL156001R2010
						0	1	AF12Z-30-01-20	1SBL156001R2001
						1	0	AF12Z-30-10-21	1SBL156001R2110
						0	1	AF12Z-30-01-21	1SBL156001R2101
						1	0	AF12Z-30-10-22	1SBL156001R2210
						0	1	AF12Z-30-01-22	1SBL156001R2201
						1	0	AF12Z-30-10-23	1SBL156001R2310
						0	1	AF12Z-30-01-23	1SBL156001R2301
7.5	30	10	30	-	12...20	1	0	AF16Z-30-10-20	1SBL176001R2010
						0	1	AF16Z-30-01-20	1SBL176001R2001
						1	0	AF16Z-30-10-21	1SBL176001R2110
						0	1	AF16Z-30-01-21	1SBL176001R2101
						1	0	AF16Z-30-10-22	1SBL176001R2210
						0	1	AF16Z-30-01-22	1SBL176001R2201
						1	0	AF16Z-30-10-23	1SBL176001R2310
						0	1	AF16Z-30-01-23	1SBL176001R2301
11	45	15	45	-	12...20	0	0	AF26Z-30-00-20	1SBL236001R2000
						0	0	AF26Z-30-00-21	1SBL236001R2100
						0	0	AF26Z-30-00-22	1SBL236001R2200
						0	0	AF26Z-30-00-23	1SBL236001R2300
15	50	20	50	-	12...20	0	0	AF30Z-30-00-20	1SBL276001R2000
						0	0	AF30Z-30-00-21	1SBL276001R2100
						0	0	AF30Z-30-00-22	1SBL276001R2200
						0	0	AF30Z-30-00-23	1SBL276001R2300
18.5	50	25	50	-	12...20	0	0	AF38Z-30-00-20	1SBL296001R2000
						0	0	AF38Z-30-00-21	1SBL296001R2100
						0	0	AF38Z-30-00-22	1SBL296001R2200
						0	0	AF38Z-30-00-23	1SBL296001R2300

<sup>(1)</sup> For other auxiliary contacts arrangements, please contact your ABB local sales organization.

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

# AF40 ... AF96 3 pole contactors

## 18.5 to 45kW AC/DC operated



AF40-30-00





AF80-30-00

### Description

AF40 ... AF96 contactors are mainly used for controlling 3-phase motors and power circuits up to 690 V AC and 220 V DC. These contactors are of the block type design with 3 main poles.

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

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number <sup>(1)</sup>	Product Hierarchy 1700009 Order Code
Rated operational power	current ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC	V 50/60 Hz	V DC				
400 V AC-3 kW	AC-1 A	hp	A						
18.5	70	30	60	24...60	-	0	0	AF40-30-00-41	1SBL347001R4100
				24...60	20...60	0	0	AF40-30-00-11	1SBL347001R1100
				48...130	48...130	0	0	AF40-30-00-12	1SBL347001R1200
				100...250	100...250	0	0	AF40-30-00-13	1SBL347001R1300
				250...500	250...500	0	0	AF40-30-00-14	1SBL347001R1400
22	100	40	80	24...60	-	0	0	AF52-30-00-41	1SBL367001R4100
				24...60	20...60	0	0	AF52-30-00-11	1SBL367001R1100
				48...130	48...130	0	0	AF52-30-00-12	1SBL367001R1200
				100...250	100...250	0	0	AF52-30-00-13	1SBL367001R1300
				250...500	250...500	0	0	AF52-30-00-14	1SBL367001R1400
30	105	50	90	24...60	-	0	0	AF65-30-00-41	1SBL387001R4100
				24...60	20...60	0	0	AF65-30-00-11	1SBL387001R1100
				48...130	48...130	0	0	AF65-30-00-12	1SBL387001R1200
				100...250	100...250	0	0	AF65-30-00-13	1SBL387001R1300
				250...500	250...500	0	0	AF65-30-00-14	1SBL387001R1400
37	125	60	105	24...60	-	0	0	AF80-30-00-41	1SBL397001R4100
				24...60	20...60	0	0	AF80-30-00-11	1SBL397001R1100
				48...130	48...130	0	0	AF80-30-00-12	1SBL397001R1200
				100...250	100...250	0	0	AF80-30-00-13	1SBL397001R1300
				250...500	250...500	0	0	AF80-30-00-14	1SBL397001R1400
45	130	60	115	24...60	-	0	0	AF96-30-00-41	1SBL407001R4100
				24...60	20...60	0	0	AF96-30-00-11	1SBL407001R1100
				48...130	48...130	0	0	AF96-30-00-12	1SBL407001R1200
				100...250	100...250	0	0	AF96-30-00-13	1SBL407001R1300
				250...500	250...500	0	0	AF96-30-00-14	1SBL407001R1400

<sup>(1)</sup> For other auxiliary contacts arrangements, please contact your ABB local sales organization.

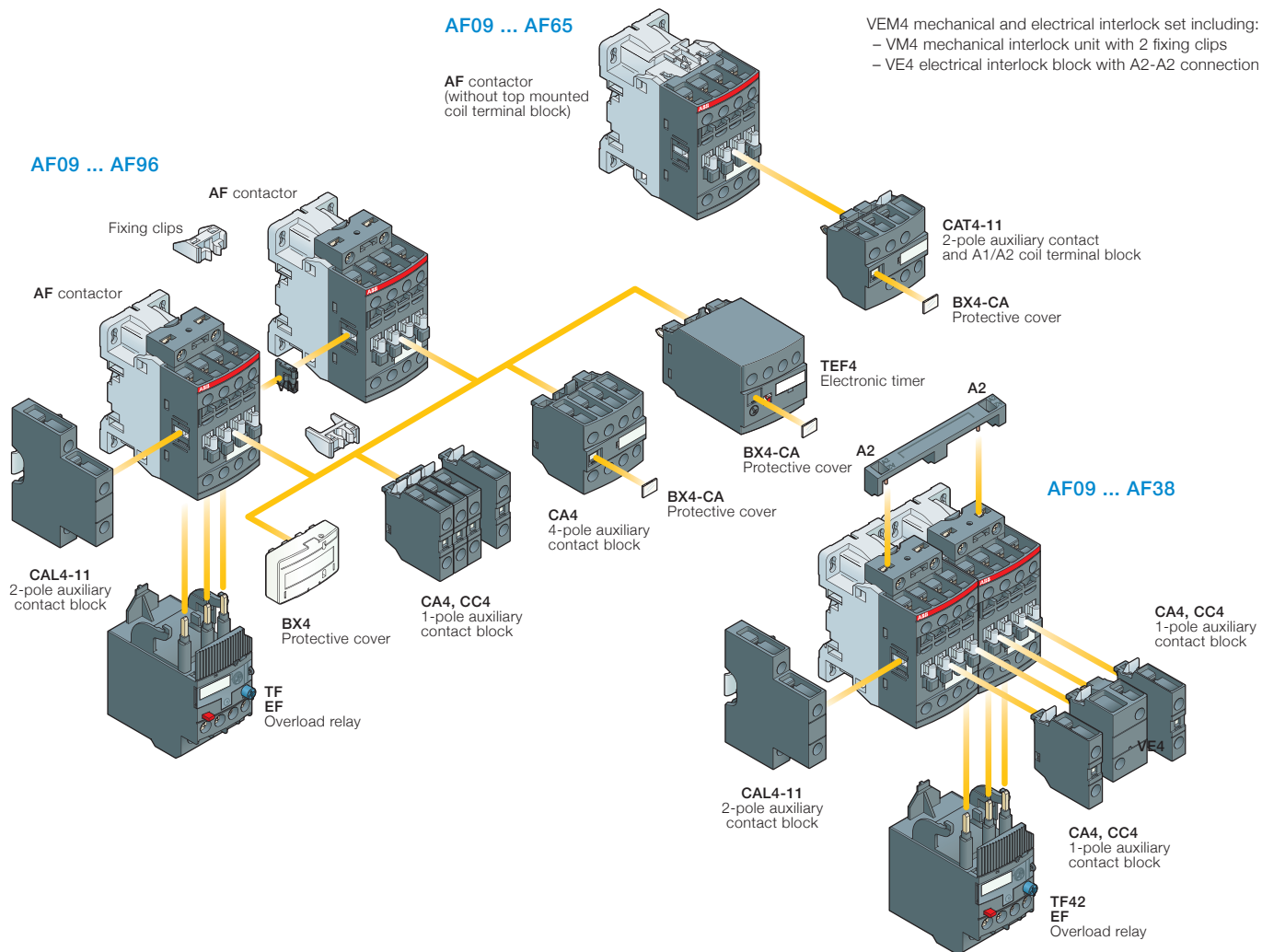
<sup>(2)</sup> AF...-30...-11 not suitable for direct control by PLC-output.



# AF09 ... AF96 3 pole contactors

## Main accessories

Contactor and main accessories (other accessories available)



### Main accessory fitting details

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

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories				Electronic timer	Electrical and mechanical interlock set (between 2 contactors)	Side-mounted accessories		
			Auxiliary contact blocks			TEF4			VEM4	Auxiliary contact blocks	
			1-pole CA4	1-pole CC4	2-pole CAT4-11		4-pole CA4				Left side
Max. N.C. built-in and add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5											
AF09 ... AF16	3	0	0	1	4 max.	or 1	or 1	–	+	1	–
AF09 ... AF16	3	0	1	0	2 max.	or 1	–	–	+	1	+ 1
AF26 ... AF38	3	0	0	0	3 max.	–	–	+ 1	+	1	or 1
Max. add-on N.C. auxiliary contacts: 6 N.C. max. on positions 1, 1 ±30°, 2, 3, 4, 5											
AF40 ... AF65	3	0	0	0	4 max.	or 1	or 1	–	+	1	+ 1
AF80, AF96	3	0	0	0	4 max.	–	or 1	–	+	1	+ 1

### Overload relays fitting details (1)

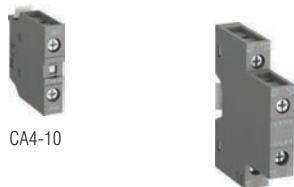
Contactor types	Thermal overload relays		Electronic overload relays	
	TF42 (0.10...38 A)	TF65 (22...67 A)	EF19 (0.10...19 A)	EF96 (36...100 A)
AF09 ... AF38	TF42 (0.10...38 A)	TF65 (22...67 A)	EF19 (0.10...19 A)	EF96 (36...100 A)
AF26 ... AF38	TF42 (0.10...38 A)	TF65 (22...67 A)	EF45 (9...45 A)	EF96 (36...100 A)
AF40 ... AF65	TF42 (0.10...38 A)	TF65 (22...67 A)	EF45 (9...45 A)	EF96 (36...100 A)
AF80, AF96	TF42 (0.10...38 A)	TF65 (22...67 A)	EF45 (9...45 A)	EF96 (36...100 A)

The addition of an overload relay on the contactor does not prevent fitting of many other accessories as shown above.

(1) Direct mounting - No kit required.

# AF09 ... AF96 3 pole contactors

## Main accessories



CA4-10



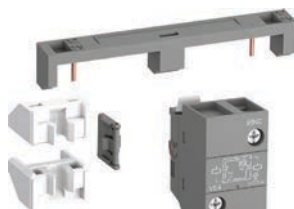
CAL4-11



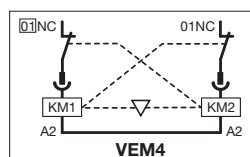
CA4-22E



CAT4-11E



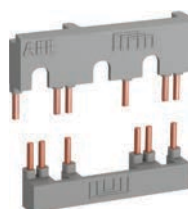
VEM4



TEF4-ON



BEA16-4



BER16-4

### Front-mounted instantaneous auxiliary contact blocks

For contactors

For contactors	Auxiliary contacts				Part Number <sup>(1)</sup>	Product Hierarchy 1700009 Order Code
	1	0	-	-		
AF09 ... AF96	1	0	-	-	CA4-10	1SBN010110R1010
	1	0	-	-	CA4-10-T	1SBN010110T1010
	0	1	-	-	CA4-01	1SBN010110R1001
	0	1	-	-	CA4-01-T	1SBN010110T1001
AF09 ... AF16...-30-10	2	2	-	-	CA4-22M	1SBN010140R1122
AF26 ... AF96...-30-00	2	2	-	-	CA4-22E	1SBN010140R1022
AF09 ... AF16...-30-01	2	2	-	-	CA4-22U	1SBN010140R1322

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

AF09 ... AF96	-	-	1	0	CC4-10	1SBN010111R1010
	-	-	0	1	CC4-01	1SBN010111R1001

### Side-mounted instantaneous auxiliary contact blocks

AF09 ... AF96	1	1	-	-	CAL4-11	1SBN010120R1011
	1	1	-	-	CAL4-11-T	1SBN010120T1011

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

AF09 ... AF16...-30-10	1	1	-	-	CAT4-11M	1SBN010151R1111
AF26 ... AF65...-30-00	1	1	-	-	CAT4-11E	1SBN010151R1011
AF09 ... AF16...-30-01	1	1	-	-	CAT4-11U	1SBN010151R1311

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

### Mechanical interlock unit

AF09 ... AF38	VM4	1SBN030105T1000
AF40 ... AF96	VM96-4	1SBN033405T1000

Note: VM4 and VM96-4 include 2 fixing clips (BB4) to maintain together both contactors.

### Mechanical and electrical interlock set

AF09 ... AF16 AF26 ... AF38	0	2	-	-	VEM4	1SBN030111R1000
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Note: - VEM4 includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.  
- VEM4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

### Electronic timers

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Part Number <sup>(1)</sup>	Product Hierarchy 1700009 Order Code
			1	1		
AF09 ... AF96	0.1...1 s	ON-delay	1	1	TEF4-ON	1SBN020112R1000
	1...10 s 10...100 s	OFF-delay	1	1	TEF4-OFF	1SBN020114R1000

Note: Rated control circuit voltage U<sub>c</sub> 24...240 V 50/60 Hz or DC.

### Connecting links with manual motor starters

AF09 ... AF16	with	MS116-0.16 ... MS116-25, MS132-0.16 ... MS132-25	BEA16-4	1SBN081306T1000
AF26 ... AF38	with	MS116-0.16 ... MS116-16, MS132-0.16 ... MS132-10	BEA26-4	1SBN082306T1000
	with	MS116-20 ... MS116-32, MS132-12 ... MS132-32	BEA38-4	1SBN082306T2000

### Connection sets for reversing contactors

AF09 ... AF16	BER16-4	1SBN081311R1000
AF26 ... AF38	BER38-4	1SBN082311R1000
AF40 ... AF65	BER65-4	1SBN083411R1000
AF80 ... AF96	BER96-4	1SBN083911R1000

### Connection sets for star-delta starting

AF09 ... AF16	With or without VM4	BEY16-4	1SBN081313R2000
AF26 ... AF38	With or without VM4	BEY38-4	1SBN082713R2000
AF40 ... AF65	With or without VM96-4	BEY65-4	1SBN083413R2000
AF80 ... AF96	With or without VM96-4	BEY96-4	1SBN083913R2000

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

# AF116 ... AF370 3 pole contactors

## 55 to 200kW AC/DC operated 1NO+1NC aux

### Description

AF116...AF140 contactors are mainly used for controlling 3-phase motors and power circuits up to 690V AC. AF146...AF370 up to 1000V AC.

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



AF146-30-11



AF146-30-11B



AF205-30-11



AF370-30-11

IEC		UL / CSA		Rated control circuit voltage Uc min. ... Uc max.	Auxiliary contacts fitted	Part Number <sup>(1)</sup>	Product Hierarchy 1700010 Order Code
Rated operational power	current ≤ 40 °C	3-phase motor rating 480 V	General use rating 600 V AC				
400 V AC-3	AC-1	hp	A	V 50/60 Hz V DC			
kW	A						

### AF116 ... AF146 for connection with built-in cable clamps

Rated operational power (kW)	Rated operational current (A)	3-phase motor rating (hp)	General use rating (A)	Rated control circuit voltage (V AC)	Rated control circuit voltage (V DC)	1NO	1NC	Part Number	Product Hierarchy
55	160	75	160	24...60	20...60	1	1	AF116-30-11-11	1SFL427001R1111
				48...130	48...130	1	1	AF116-30-11-12	1SFL427001R1211
				100...250	100...250	1	1	AF116-30-11-13	1SFL427001R1311
				250...500	250...500	1	1	AF116-30-11-14	1SFL427001R1411
75	200	100	200	24...60	20...60	1	1	AF140-30-11-11	1SFL447001R1111
				48...130	48...130	1	1	AF140-30-11-12	1SFL447001R1211
				100...250	100...250	1	1	AF140-30-11-13	1SFL447001R1311
				250...500	250...500	1	1	AF140-30-11-14	1SFL447001R1411
75	225	100	200	24...60	20...60	1	1	AF146-30-11-11	1SFL467001R1111
				48...130	48...130	1	1	AF146-30-11-12	1SFL467001R1211
				100...250	100...250	1	1	AF146-30-11-13	1SFL467001R1311
				250...500	250...500	1	1	AF146-30-11-14	1SFL467001R1411

### with bar connections

Rated operational power (kW)	Rated operational current (A)	3-phase motor rating (hp)	General use rating (A)	Rated control circuit voltage (V AC)	Rated control circuit voltage (V DC)	1NO	1NC	Part Number	Product Hierarchy
55	160	75	160	24...60	20...60	1	1	AF116-30-11B-11	1SFL427002R1111
				48...130	48...130	1	1	AF116-30-11B-12	1SFL427002R1211
				100...250	100...250	1	1	AF116-30-11B-13	1SFL427002R1311
				250...500	250...500	1	1	AF116-30-11B-14	1SFL427002R1411
75	200	100	200	24...60	20...60	1	1	AF140-30-11B-11	1SFL447002R1111
				48...130	48...130	1	1	AF140-30-11B-12	1SFL447002R1211
				100...250	100...250	1	1	AF140-30-11B-13	1SFL447002R1311
				250...500	250...500	1	1	AF140-30-11B-14	1SFL447002R1411
75	225	100	200	24...60	20...60	1	1	AF146-30-11B-11	1SFL467002R1111
				48...130	48...130	1	1	AF146-30-11B-12	1SFL467002R1211
				100...250	100...250	1	1	AF146-30-11B-13	1SFL467002R1311
				250...500	250...500	1	1	AF146-30-11B-14	1SFL467002R1411

### AF190 ... AF370

Rated operational power (kW)	Rated operational current (A)	3-phase motor rating (hp)	General use rating (A)	Rated control circuit voltage (V AC)	Rated control circuit voltage (V DC)	1NO	1NC	Part Number	Product Hierarchy
90	275	125	250	24...60	20...60	1	1	AF190-30-11-11	1SFL487002R1111
				48...130	48...130	1	1	AF190-30-11-12	1SFL487002R1211
				100...250	100...250	1	1	AF190-30-11-13	1SFL487002R1311
				250...500	250...500	1	1	AF190-30-11-14	1SFL487002R1411
110	350	150	300	24...60	20...60	1	1	AF205-30-11-11	1SFL527002R1111
				48...130	48...130	1	1	AF205-30-11-12	1SFL527002R1211
				100...250	100...250	1	1	AF205-30-11-13	1SFL527002R1311
				250...500	250...500	1	1	AF205-30-11-14	1SFL527002R1411
140	400	200	350	24...60	20...60	1	1	AF265-30-11-11	1SFL547002R1111
				48...130	48...130	1	1	AF265-30-11-12	1SFL547002R1211
				100...250	100...250	1	1	AF265-30-11-13	1SFL547002R1311
				250...500	250...500	1	1	AF265-30-11-14	1SFL547002R1411
160	500	250	400	24...60	20...60	1	1	AF305-30-11-11	1SFL587002R1111
				48...130	48...130	1	1	AF305-30-11-12	1SFL587002R1211
				100...250	100...250	1	1	AF305-30-11-13	1SFL587002R1311
				250...500	250...500	1	1	AF305-30-11-14	1SFL587002R1411
200	600	300	520	24...60	20...60	1	1	AF370-30-11-11	1SFL607002R1111
				48...130	48...130	1	1	AF370-30-11-12	1SFL607002R1211
				100...250	100...250	1	1	AF370-30-11-13	1SFL607002R1311
				250...500	250...500	1	1	AF370-30-11-14	1SFL607002R1411

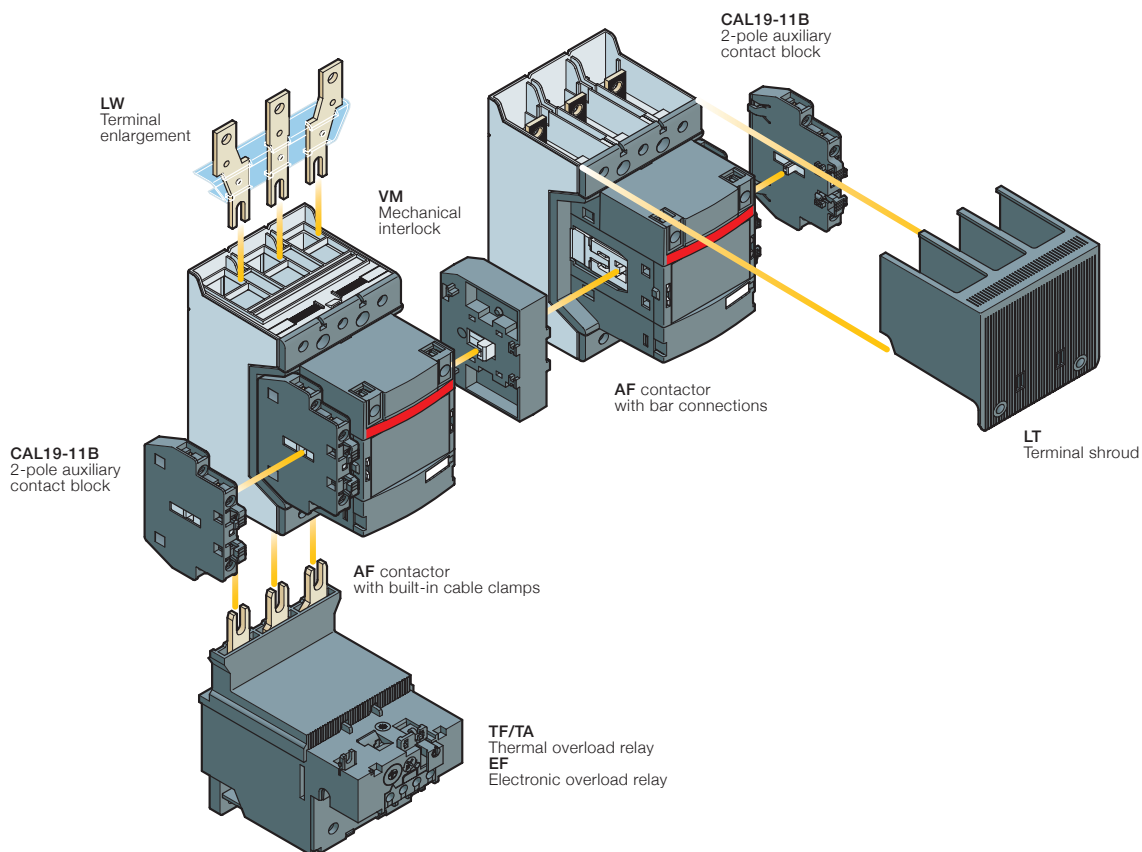
<sup>(1)</sup> For other auxiliary contacts arrangements, please contact your ABB local sales organization.



# AF116 ... AF370 3 pole contactors

## Main accessories

Main accessories (other accessories available)



### Main accessory fitting details

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories		
			Auxiliary contact blocks		
			CAL19-11	CAL19-11B	Mechanical interlock units (between two contactors)
AF116 ... AF370	3	0 1 1	1 x CAL19-11	+ 2 x CAL19-11B	–
AF116 ... AF370	3	0 1 1	–	+ 2 x CAL19-11B (1)	+ VM... (2)

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

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

### Overload relays fitting details (1)

Contactor types	Thermal overload relays	Electronic overload relays
AF116 ... AF140	TF140DU (66...142 A)	EF146 (54...150 A)
AF146	–	EF146 (54...150 A)
AF190, AF205	TA200DU (66...200 A)	EF205 (63...210 A)
AF265 ... AF370	–	EF370 (115...380 A)

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

(1) Direct mounting - No kit required.

# AF116 ... AF370 3 pole contactors



## Main accessories



CAL19-11

### Side-mounted instantaneous auxiliary contact blocks

For contactors

	Auxiliary contacts		Part Number <sup>(1)</sup>	Product Hierarchy 1700010 Order Code
				
AF116 ... AF370	1	1	CAL19-11	1SFN010820R1011
	1	1	CAL19-11B	1SFN010820R3311

### Mechanical interlock unit

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



### Terminal shrouds

AF116 ... AF146, with compression lugs	LT140-30L	1SFN124203R1000
AF190, AF205, with cable clamps	LT205-30C	1SFN124801R1000
AF190, AF205, with compression lugs	LT205-30L	1SFN124803R1000
AF190, AF205, with shorting bar or between contactor and TOL/EOL in DOL-starters	LT205-30Y	1SFN124804R1000
AF265 ... AF370, with cable clamps	LT370-30C	1SFN125401R1000
AF265 ... AF370, with compression lugs	LT370-30L	1SFN125403R1000
AF265 ... AF370, with shorting bar or between contactor and TOL/EOL in DOL-starters	LT370-30Y	1SFN125404R1000
AF265 ... AF370, for use with extending cable clamps, ATK300/2 and OZXB4	LT370-30D	1SFN125406R1000



LT370-30C

### Terminal enlargements

For contactors	Dimensions		Part Number <sup>(1)</sup>	Product Hierarchy 1700010 Order Code
	hole Ø mm	bar mm		
AF116...AF146	6.5	13 x 3	LW140	1SFN074207R1000
AF190...AF205	10.5	17.5 x 5	LW205	1SFN074807R1000
AF265...AF370	10.5	20 x 5	LW370	1SFN075407R1000



LX140

### Terminal extension

AF116...AF146	6.5	13 x 3	LX140	1SFN074210R1000
AF190...AF250	8.5	17.5 x 5	LX205	1SFN074810R1000
AF265...AF370	10.5	20 x 5	LX370	1SFN075410R1000

<sup>(1)</sup> For more information, refer to main catalog "Accessories" section.

# AF400 ... AF2650 3 pole contactors

## 200 to 560kW and 1260 to 2650A AC-1

### AC/DC operated 1NO+1NC aux



AF460-30-11

#### Description

AF400 ... AF750 contactors are mainly used for controlling 3-phase motors and power circuits up to 1000 V AC or 600 V DC<sup>(2)</sup>. These contactors are of the block type design with 3 main poles.

AF1250 ... AF2050 contactors are mainly used for controlling power circuits up to 1000 V AC or 850 V DC, AF2650 for controlling power up to 1000 V AC. These contactors are of the block type design with 3 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range
  - (e.g. 100...250 V AC and DC), only 4 coils AF400 ... AF1250 to cover control voltages between 48...500 V 50/60 Hz and 24...500 V DC
  - only 1 coil for AF1350 ... AF2650 to cover control voltages between 100...250 V 50/60 Hz and 100...250 V DC
  - can manage large control voltage variations
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltages sags (SEMI F47 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.



AF750-30-11



AF1250-30-11



AF2650-30-11

IEC Rated operational power 400 V AC-3 kW	UL/CSA current ≤ 40 °C 690 V AC-1 A	3-phase motor rating 480 V hp	General use rating 600 V AC (2) A	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number	Product Hierarchy 1700001 Order Code
				V 50/60 Hz	V DC	1	2		
200	600	350	550	-	24...60	1	1	AF400-30-11	1SFL577001R6811 <sup>(1)</sup>
				48...130	48...130	1	1	AF400-30-11	1SFL577001R6911
				100...250	100...250	1	1	AF400-30-11	1SFL577001R7011
				250...500	250...500	1	1	AF400-30-11	1SFL577001R7111
250	700	400	650	-	24...60	1	1	AF460-30-11	1SFL597001R6811 <sup>(1)</sup>
				48...130	48...130	1	1	AF460-30-11	1SFL597001R6911
				100...250	100...250	1	1	AF460-30-11	1SFL597001R7011
				250...500	250...500	1	1	AF460-30-11	1SFL597001R7111
315	800	500	750	-	24...60	1	1	AF580-30-11	1SFL617001R6811 <sup>(1)</sup>
				48...130	48...130	1	1	AF580-30-11	1SFL617001R6911
				100...250	100...250	1	1	AF580-30-11	1SFL617001R7011
				250...500	250...500	1	1	AF580-30-11	1SFL617001R7111
400	1050	600	900	-	24...60	1	1	AF750-30-11	1SFL637001R6811 <sup>(1)</sup>
				48...130	48...130	1	1	AF750-30-11	1SFL637001R6911
				100...250	100...250	1	1	AF750-30-11	1SFL637001R7011
				250...500	250...500	1	1	AF750-30-11	1SFL637001R7111

#### AF1250 ... AF2650

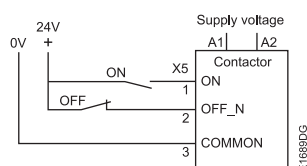
-	1260	-	1210	-	24...60	1	1	AF1250-30-11	1SFL647001R6811 <sup>(1)</sup>
				48...130	48...130	1	1	AF1250-30-11	1SFL647001R6911
				100...250	100...250	1	1	AF1250-30-11	1SFL647001R7011
				250...500	250...500	1	1	AF1250-30-11	1SFL647001R7111
475	1350	800	1350	100...250	100...250	1	1	AF1350-30-11	1SFL657001R7011
560	1650	900	1650	100...250	100...250	1	1	AF1650-30-11	1SFL677001R7011
-	2050	-	2100	100...250	100...250	1	1	AF2050-30-11	1SFL707001R7011
-	2650	-	2700	100...250	100...250	1	1	AF2650-30-11	1SFL667001R7011

<sup>(1)</sup> The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

<sup>(2)</sup> Up to 850 V DC for AF580 ... AF750. AF2650: Maximum operational voltage = 1000 V according to UL / CSA.

AF400 ... AF750 are equipped with low voltage inputs for control, for example by a PLC.

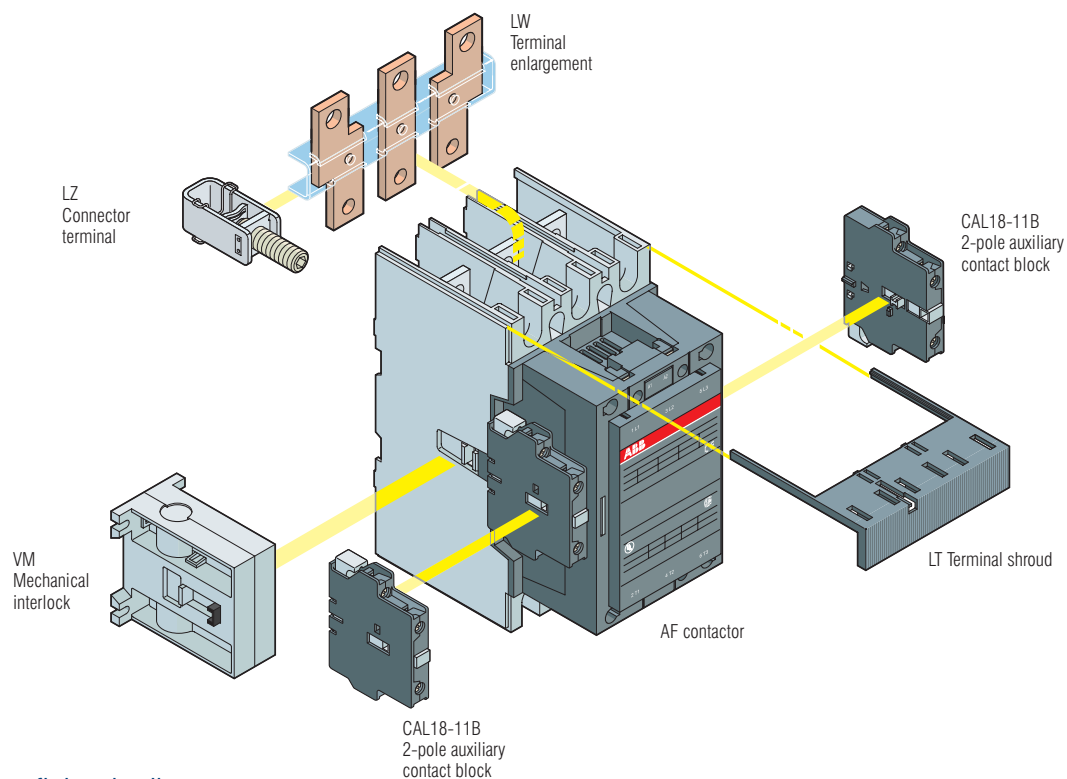
#### Control inputs



# AF400 ... AF2650 3 pole contactors

## Main accessories

Main accessories (other accessories available)



### Main accessory fitting details

Contactor types	Main poles	Available auxiliary contacts	Side-mounted accessories		Mechanical interlock units (between two contactors)
			Auxiliary contact blocks		
			CAL18-11	CAL18-11B <sup>(3)</sup>	

### Contactor + auxiliary contact blocks

AF400 ... AF2650	3	0	1	1	1 x CAL18-11	+	2 x CAL18-11B	–
------------------	---	---	---	---	--------------	---	---------------	---

### Contactor with mechanical interlocking + auxiliary contact blocks

AF400 ... AF2650	3	0	1	1	2 x CAL18-11 <sup>(1)</sup>	+	4 x CAL18-11B <sup>(1)</sup>	+	VM...H <sup>(2)</sup>
------------------	---	---	---	---	-----------------------------	---	------------------------------	---	-----------------------

<sup>(1)</sup> Total number of auxiliary contact blocks for the two contactors.

<sup>(2)</sup> Interlock type, according to the contactor ratings (see "Accessories").

<sup>(3)</sup> The CEL18-.. auxiliary contact blocks can replace the CAL18-11 and CAL18-11B. Though, no auxiliary contact block can be mounted outside the CEL18-..

### Overload relays fitting details

Contactor types	Thermal overload relays	Electronic overload relays
	AF400, AF460	–
AF580, AF750	–	EF750 (250...800 A) <sup>(4)</sup>
AF1350, AF1650	–	E1250DU (375...1250 A) <sup>(4)</sup>

The addition of a thermal or electronic overload relay on the contactor does not prevent fitting of many other accessories as shown in "Main accessory fitting details" table.

<sup>(4)</sup> Mounting kit required (see "Motor protection").



# AF400 ... AF2650 3 pole contactors

## Main accessories



CAL18-11

### Side-mounted instantaneous auxiliary contact blocks

For contactors

AF400 ... AF2650

Auxiliary contacts

1	1
1	1

Part Number

CAL18-11  
CAL18-11B

Product Hierarchy 1700001  
Order Code

1SFN010720R1011  
1SFN010720R3311



VM750H

### Mechanical interlock unit

AF400 ... AF1250

AF1350 ... AF2650

VM750H

VM1650H

1SFN035700R1000

1SFN036503R1000



LT460-AC

### Terminal shrouds

AF400, AF460 with connectors

AF400, AF460 with lugs

AF580 ... AF750 with connectors

AF580 ... AF750 with lugs

LT460-AC

LT460-AL

LT750-AC

LT750-AL

1SFN125701R1000

1SFN125703R1000

1SFN126101R1000

1SFN126103R1000

### Terminal enlargement

For contactors

AF400, AF460

AF580, AF750

AF1250

Dimensions

hole Ø  
mm

10.5

13

13

bar  
mm

25 x 5

40 x 6

50 x 10

Part Number

LW460

LW750

LW1250

Product Hierarchy 1700001  
Order Code

1SFN075707R1000

1SFN076107R1000

1SFN076407R1000

### Terminal extension

AF400, AF460

AF580, AF750

10.5

13

25 x 5

40 x 6

LX460

LX750




1SFN075710R1000

1SFN076110R1000



# 4 pole contactor overview



IEC	AC-1 Rated operational current	≤ 40 °C, 690 V	A	25	30	45	55	70	100	125
UL/CSA	General use rating	600 V	A	25	30	45	55	—	—	—
AC / DC Control supply		Type		AF09	AF16	AF26	AF38	AF40	AF52	AF80
AC Control supply		Type		AF09	AF16	AF26	AF38	AF40	AF52	AF80
DC Control supply		Type		AF09	AF16	AF26	AF38	AF40	AF52	AF80
IEC	AC-1 Rated operational current	≤ 40 °C	A	25	30	45	55	70	100	125
		≤ 60 °C (1)	A	25	30	40	45	60	80	105
		≤ 70 °C	A	22	26	32	37	50	70	90
	With conductor cross sectional area		mm <sup>2</sup>	4	6	10	16	35	35	50
	Rated operational voltage U <sub>e</sub> max.		V	690	690	690	690	690	690	690
UL/CSA	General use rating	600 V	A	25	30	45	55	—	—	—

<sup>(1)</sup> ≤ 55 °C for EK550, EK1000 contactors

## Main accessories

Auxiliary contact blocks	Front mounting	CA4-10 (1 x N.O.), CA4-01 (1 x N.C.)
	Side mounting	CAL4-11 (1 x N.O. + 1 x N.C.)
Timers	Electronic	TEF4-ON TEF4-OFF
Interlocking units	Mechanical	VM4
	Mechanical / Electrical	VEM4
Surge suppressors	Varistor + RC (AC / DC)	Built-in surge protection



160	200	275	350	400	500	525	800	1000
—	—	—	—	—	—	—	540	—
AF116	AF140	AF190	AF205	AF265	AF305	AF370	—	—
AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
AF116	AF140	AF190	AF205	AF265	AF305	AF370	EK550	EK1000
160	200	250	275	350	375	400	800	1000
145	175	225	250	300	325	350	650	800
130	160	185	200	240	260	290	575	720
70	95	150	240	240	300	2 x 185	2 x 240	2 x 300
690	690	1000	1000	1000	1000	1000	1000	1000
—	—	—	—	—	—	—	540	—

CAL19-11 (1 x N.O. + 1 x N.C.)	CAL16-11 (1 x N.O. + 1 x N.C.)
VM19 (for same size contactors)	VH800
	RC-EH800



# AF09 ... AF38 4 pole contactors

## 25 to 55A AC-1 AC/DC operated



AF09-40-00



AF26-40-00

### Description

AF09 ... AF38 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

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

IEC Rated operational current ≤ 40 °C AC-1	UL/CSA General use rating 600 V AC	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number	Product Hierarchy 1700009 Order Code
A	A	V 50/60 Hz	V DC				

### 4 N.O. main poles

IEC	UL/CSA	24...60	20...60	0	0	Part Number	Product Hierarchy 1700009 Order Code
25	25	24...60	20...60	0	0	AF09-40-00-11	1SBL137201R1100
		48...130	48...130	0	0	AF09-40-00-12	1SBL137201R1200
		100...250	100...250	0	0	AF09-40-00-13	1SBL137201R1300
		250...500	250...500	0	0	AF09-40-00-14	1SBL137201R1400
30	30	24...60	20...60	0	0	AF16-40-00-11	1SBL177201R1100
		48...130	48...130	0	0	AF16-40-00-12	1SBL177201R1200
		100...250	100...250	0	0	AF16-40-00-13	1SBL177201R1300
		250...500	250...500	0	0	AF16-40-00-14	1SBL177201R1400
45	45	24...60	20...60	0	0	AF26-40-00-11	1SBL237201R1100
		48...130	48...130	0	0	AF26-40-00-12	1SBL237201R1200
		100...250	100...250	0	0	AF26-40-00-13	1SBL237201R1300
		250...500	250...500	0	0	AF26-40-00-14	1SBL237201R1400
55	55	24...60	20...60	0	0	AF38-40-00-11	1SBL297201R1100
		48...130	48...130	0	0	AF38-40-00-12	1SBL297201R1200
		100...250	100...250	0	0	AF38-40-00-13	1SBL297201R1300
		250...500	250...500	0	0	AF38-40-00-14	1SBL297201R1400

### 2 N.O. + 2 N.C. main poles

IEC	UL/CSA	24...60	20...60	0	0	Part Number	Product Hierarchy 1700009 Order Code
25	25	24...60	20...60	0	0	AF09-22-00-11	1SBL137501R1100
		48...130	48...130	0	0	AF09-22-00-12	1SBL137501R1200
		100...250	100...250	0	0	AF09-22-00-13	1SBL137501R1300
		250...500	250...500	0	0	AF09-22-00-14	1SBL137501R1400
30	30	24...60	20...60	0	0	AF16-22-00-11	1SBL177501R1100
		48...130	48...130	0	0	AF16-22-00-12	1SBL177501R1200
		100...250	100...250	0	0	AF16-22-00-13	1SBL177501R1300
		250...500	250...500	0	0	AF16-22-00-14	1SBL177501R1400
45	45	24...60	20...60	0	0	AF26-22-00-11	1SBL237501R1100
		48...130	48...130	0	0	AF26-22-00-12	1SBL237501R1200
		100...250	100...250	0	0	AF26-22-00-13	1SBL237501R1300
		250...500	250...500	0	0	AF26-22-00-14	1SBL237501R1400
55	55	24...60	20...60	0	0	AF38-22-00-11	1SBL297501R1100
		48...130	48...130	0	0	AF38-22-00-12	1SBL297501R1200
		100...250	100...250	0	0	AF38-22-00-13	1SBL297501R1300
		250...500	250...500	0	0	AF38-22-00-14	1SBL297501R1400

# AF09Z ... AF38Z 4 pole contactors

## 25 to 55A AC-1 AC/DC operated - low consumption



AF09Z-40-00



AF26Z-40-00

### Description

AF09Z ... AF38Z 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC and 440 V DC. These contactors are of the block type design with 4 main poles.

- control circuit: AC or DC operated with electronic coil interface accepting a wide control voltage range (e.g. 100...250 V AC and DC), only 4 control voltage ranges covering 24...250 V 50/60 Hz and 12...250 V DC
  - can manage large control voltage variations
  - allow direct control by PLC-output  $\geq 24$  V DC 500 mA
  - reduced panel energy consumption
  - very distinct closing and opening
  - can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).
- built-in surge suppression
- add-on auxiliary contact blocks for front or side mounting and a wide range of accessories.

IEC Rated operational current $\leq 40$ °C AC-1	UL/CSA General use rating 600 V AC	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number	Product Hierarchy 1700009 Order Code
		V 50/60 Hz	V DC				
A	A	V 50/60 Hz	V DC				

### 4 N.O. main poles

Rated operational current (A)	General use rating (A)	V 50/60 Hz	V DC	NO	NC	Part Number	Product Hierarchy Order Code
25	25	-	12...20	0	0	AF09Z-40-00-20	1SBL136201R2000
		24...60	20...60	0	0	AF09Z-40-00-21	1SBL136201R2100
		48...130	48...130	0	0	AF09Z-40-00-22	1SBL136201R2200
		100...250	100...250	0	0	AF09Z-40-00-23	1SBL136201R2300
30	30	-	12...20	0	0	AF16Z-40-00-20	1SBL176201R2000
		24...60	20...60	0	0	AF16Z-40-00-21	1SBL176201R2100
		48...130	48...130	0	0	AF16Z-40-00-22	1SBL176201R2200
		100...250	100...250	0	0	AF16Z-40-00-23	1SBL176201R2300
45	45	-	12...20	0	0	AF26Z-40-00-20	1SBL236201R2000
		24...60	20...60	0	0	AF26Z-40-00-21	1SBL236201R2100
		48...130	48...130	0	0	AF26Z-40-00-22	1SBL236201R2200
		100...250	100...250	0	0	AF26Z-40-00-23	1SBL236201R2300
55	55	-	12...20	0	0	AF38Z-40-00-20	1SBL296201R2000
		24...60	20...60	0	0	AF38Z-40-00-21	1SBL296201R2100
		48...130	48...130	0	0	AF38Z-40-00-22	1SBL296201R2200
		100...250	100...250	0	0	AF38Z-40-00-23	1SBL296201R2300

### 2 N.O. + 2 N.C. main poles

Rated operational current (A)	General use rating (A)	V 50/60 Hz	V DC	NO	NC	Part Number	Product Hierarchy Order Code
25	25	-	12...20	0	0	AF09Z-22-00-20	1SBL136501R2000
		24...60	20...60	0	0	AF09Z-22-00-21	1SBL136501R2100
		48...130	48...130	0	0	AF09Z-22-00-22	1SBL136501R2200
		100...250	100...250	0	0	AF09Z-22-00-23	1SBL136501R2300
30	30	-	12...20	0	0	AF16Z-22-00-20	1SBL176501R2000
		24...60	20...60	0	0	AF16Z-22-00-21	1SBL176501R2100
		48...130	48...130	0	0	AF16Z-22-00-22	1SBL176501R2200
		100...250	100...250	0	0	AF16Z-22-00-23	1SBL176501R2300
45	45	-	12...20	0	0	AF26Z-22-00-20	1SBL236501R2000
		24...60	20...60	0	0	AF26Z-22-00-21	1SBL236501R2100
		48...130	48...130	0	0	AF26Z-22-00-22	1SBL236501R2200
		100...250	100...250	0	0	AF26Z-22-00-23	1SBL236501R2300
55	55	-	12...20	0	0	AF38Z-22-00-20	1SBL296501R2000
		24...60	20...60	0	0	AF38Z-22-00-21	1SBL296501R2100
		48...130	48...130	0	0	AF38Z-22-00-22	1SBL296501R2200
		100...250	100...250	0	0	AF38Z-22-00-23	1SBL296501R2300

Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

# AF40 ... AF80 4 pole contactors

## 70 to 125A AC-1 AC/DC operated



AF40-40-00



AF80-40-00

### Description

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

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

IEC Rated operational current ≤ 40 °C AC-1 A	UL/CSA General use rating 600 V AC A	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number <sup>(1)</sup>	Product Hierarchy 1700009 Order Code
		V 50/60 Hz	V DC	Y	L		

### 4 N.O. Main Poles

Rated current (A)	General use rating (A)	Rated control circuit voltage V 50/60 Hz	Rated control circuit voltage V DC	Auxiliary contacts Y	Auxiliary contacts L	Part Number	Product Hierarchy Order Code
70	-	24...60	-	0	0	AF40-40-00-41	1SBL347201R4100
		24...60	20...60 <sup>(1)</sup>	0	0	AF40-40-00-11	1SBL347201R1100
		48...130	48...130	0	0	AF40-40-00-12	1SBL347201R1200
		100...250	100...250	0	0	AF40-40-00-13	1SBL347201R1300
		250...500	250...500	0	0	AF40-40-00-14	1SBL347201R1400
100	-	24...60	-	0	0	AF52-40-00-41	1SBL367201R4100
		24...60	20...60 <sup>(1)</sup>	0	0	AF52-40-00-11	1SBL367201R1100
		48...130	48...130	0	0	AF52-40-00-12	1SBL367201R1200
		100...250	100...250	0	0	AF52-40-00-13	1SBL367201R1300
		250...500	250...500	0	0	AF52-40-00-14	1SBL367201R1400
125	-	24...60	-	0	0	AF80-40-00-41	1SBL397201R4100
		24...60	20...60 <sup>(1)</sup>	0	0	AF80-40-00-11	1SBL397201R1100
		48...130	48...130	0	0	AF80-40-00-12	1SBL397201R1200
		100...250	100...250	0	0	AF80-40-00-13	1SBL397201R1300
		250...500	250...500	0	0	AF80-40-00-14	1SBL397201R1400

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

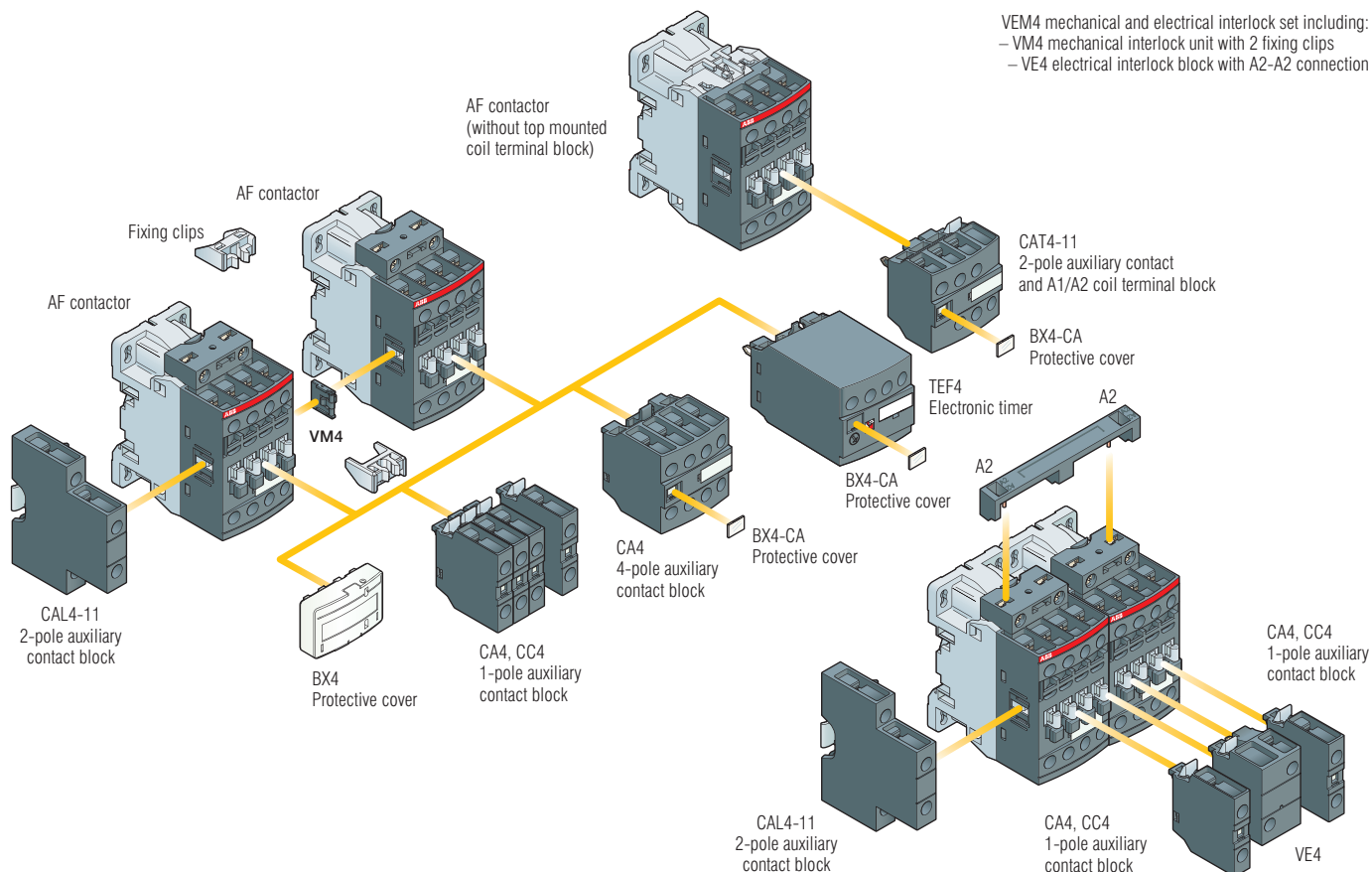
Rated current (A)	General use rating (A)	Rated control circuit voltage V 50/60 Hz	Rated control circuit voltage V DC	Auxiliary contacts Y	Auxiliary contacts L	Part Number	Product Hierarchy Order Code
70	-	24...60	-	0	0	AF40-22-00-41	1SBL347501R4100
		24...60	20...60 <sup>(1)</sup>	0	0	AF40-22-00-11	1SBL347501R1100
		48...130	48...130	0	0	AF40-22-00-12	1SBL347501R1200
		100...250	100...250	0	0	AF40-22-00-13	1SBL347501R1300
		250...500	250...500	0	0	AF40-22-00-14	1SBL347501R1400
125	-	24...60	-	0	0	AF80-22-00-41	1SBL397501R4100
		24...60	20...60 <sup>(1)</sup>	0	0	AF80-22-00-11	1SBL397501R1100
		48...130	48...130	0	0	AF80-22-00-12	1SBL397501R1200
		100...250	100...250	0	0	AF80-22-00-13	1SBL397501R1300
		250...500	250...500	0	0	AF80-22-00-14	1SBL397501R1400

<sup>(1)</sup> AF...-...-11 not suitable for direct control by PLC-output.

# AF09 ... AF80 4 pole contactors

## Main accessories

### Contactor and main accessories (other accessories available)



### Main accessory fitting details

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

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



# AF09 ... AF80 4 pole contactors

## Main accessories



CA4-10



CAL4-11



CA4-22E



CAT4-11E

### Front-mounted instantaneous auxiliary contact blocks

For contactors

	Auxiliary contacts				Part Number	Product Hierarchy 1700009 Order Code
	1	0	-	-		
AF09 ... AF80-40-00	1	0	-	-	CA4-10	1SBN010110R1010
AF09 ... AF80-22-00	1	0	-	-	CA4-10-T	1SBN010110T1010
	0	1	-	-	CA4-01	1SBN010110R1001
	0	1	-	-	CA4-01-T	1SBN010110T1001
	2	2	-	-	CA4-22E	1SBN010140R1022
	3	1	-	-	CA4-31E	1SBN010140R1031
	4	0	-	-	CA4-40E	1SBN010140R1040
AF09 ... AF16...-40-00 AF40 ... AF80-40-00	0	4	-	-	CA4-04E	1SBN010140R1004

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

	1	0	-	-	Part Number	Product Hierarchy 1700009 Order Code
AF09 ... AF80-40-00	1	0	-	-	CC4-10	1SBN010111R1010
AF09 ... AF80-22-00	0	1	-	-	CC4-01	1SBN010111R1001

### Side-mounted instantaneous auxiliary contact blocks

	1	1	-	-	Part Number	Product Hierarchy 1700009 Order Code
AF09 ... AF80-40-00	1	1	-	-	CAL4-11	1SBN010120R1011
AF09 ... AF80-22-00	1	1	-	-	CAL4-11-T	1SBN010120T1011

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

	1	1	-	-	Part Number	Product Hierarchy 1700009 Order Code
AF09 ... AF52...-40-00	1	1	-	-	CAT4-11E	1SBN010151R1011

Note: CAT4 not suitable for AF..Z contactors with DC control voltage 12...20 V DC.

### Mechanical interlock unit

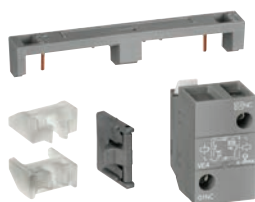
	Part Number	Product Hierarchy 1700009 Order Code
AF09 ... AF38...-40-00	VM4	1SBN030105T1000
AF40 ... AF80...-40-00	VM96-4	1SBN033405T1000

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

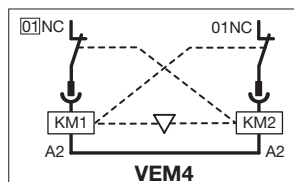
### Mechanical and electrical interlock set

	0	2	-	-	Part Number	Product Hierarchy 1700009 Order Code
AF09, AF16...-40-00 AF26, AF38...-40-00	0	2	-	-	VEM4	1SBN030111R1000

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



VEM4



TEF4-ON

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Part Number	Product Hierarchy 1700009 Order Code
			1	1		
AF09 ... AF80	0.1...1 s	ON-delay	1	1	TEF4-ON	1SBN020112R1000
	1...10 s 10...100 s	OFF-delay	1	1	TEF4-OFF	1SBN020114R1000

Note: Rated control circuit voltage U<sub>c</sub> 24...240 V 50/60 Hz or DC.

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

# AF116 ... AF370 4 pole contactors

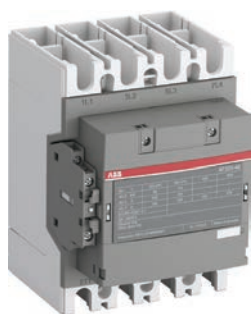
## 160 to 525A AC-1 AC/DC operated 1NO+1NC aux



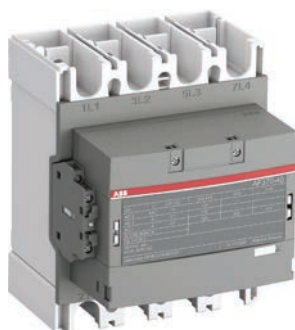
AF140-40-11



AF140-40-11B



AF205-40-11







AF370-40-11

### Description

AF116 ... AF140 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 690 V AC. AF190...AF370 up to 1000V AC these contactors are of the block type design with 4 main poles.

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

IEC Rated operational current ≤ 40 °C AC-1	UL / CSA General use rating 600 V AC	Rated control circuit voltage Uc min. ... Uc max.		Auxiliary contacts fitted		Part Number <sup>(1)</sup>	Product Hierarchy 1700010 Order Code
		V 50/60 Hz	V DC				
A	A	V 50/60 Hz	V DC				

### AF116 ... AF140

4 N.O. main poles for connection with built-in cable clamps

Rated current (A)	Control voltage (V)	Control voltage (V)	NO (1)	NC (1)	Part Number	Product Hierarchy
160	24...60	20...60	1	1	AF116-40-11-11	1SFL427101R1111
	48...130	48...130	1	1	AF116-40-11-12	1SFL427101R1211
	100...250	100...250	1	1	AF116-40-11-13	1SFL427101R1311
	250...500	250...500	1	1	AF116-40-11-14	1SFL427101R1411
200	24...60	20...60	1	1	AF140-40-11-11	1SFL447101R1111
	48...130	48...130	1	1	AF140-40-11-12	1SFL447101R1211
	100...250	100...250	1	1	AF140-40-11-13	1SFL447101R1311
	250...500	250...500	1	1	AF140-40-11-14	1SFL447101R1411

With bar connections

Rated current (A)	Control voltage (V)	Control voltage (V)	NO (1)	NC (1)	Part Number	Product Hierarchy
160	24...60	20...60	1	1	AF116-40-11B-11	1SFL427102R1111
	48...130	48...130	1	1	AF116-40-11B-12	1SFL427102R1211
	100...250	100...250	1	1	AF116-40-11B-13	1SFL427102R1311
	250...500	250...500	1	1	AF116-40-11B-14	1SFL427102R1411
200	24...60	20...60	1	1	AF140-40-11B-11	1SFL447102R1111
	48...130	48...130	1	1	AF140-40-11B-12	1SFL447102R1211
	100...250	100...250	1	1	AF140-40-11B-13	1SFL447102R1311
	250...500	250...500	1	1	AF140-40-11B-14	1SFL447102R1411

### Description

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

### AF190 ... AF370

4 N.O. main poles

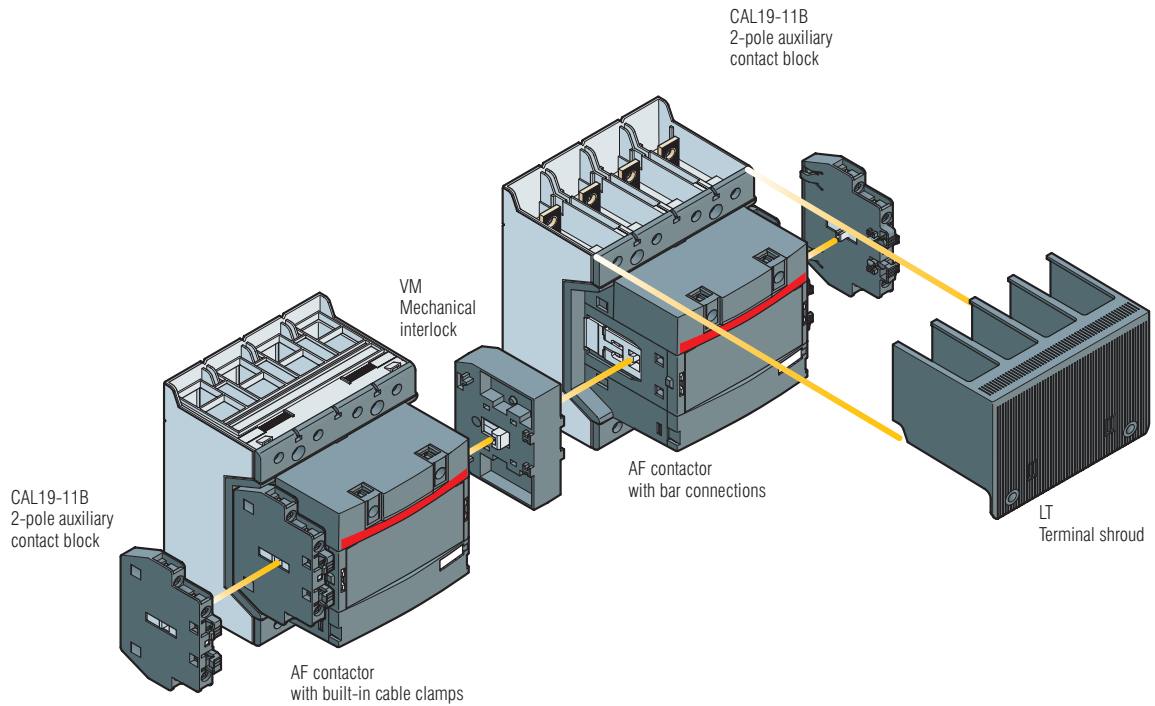
Rated current (A)	Control voltage (V)	Control voltage (V)	NO (1)	NC (1)	Part Number	Product Hierarchy
275	24...60	20...60	1	1	AF190-40-11-11	1SFL487102R1111
	48...130	48...130	1	1	AF190-40-11-12	1SFL487102R1211
	100...250	100...250	1	1	AF190-40-11-13	1SFL487102R1311
	250...500	250...500	1	1	AF190-40-11-14	1SFL487102R1411
350	24...60	20...60	1	1	AF205-40-11-11	1SFL527102R1111
	48...130	48...130	1	1	AF205-40-11-12	1SFL527102R1211
	100...250	100...250	1	1	AF205-40-11-13	1SFL527102R1311
	250...500	250...500	1	1	AF205-40-11-14	1SFL527102R1411
400	24...60	20...60	1	1	AF265-40-11-11	1SFL547102R1111
	48...130	48...130	1	1	AF265-40-11-12	1SFL547102R1211
	100...250	100...250	1	1	AF265-40-11-13	1SFL547102R1311
	250...500	250...500	1	1	AF265-40-11-14	1SFL547102R1411
500	24...60	20...60	1	1	AF305-40-11-11	1SFL587102R1111
	48...130	48...130	1	1	AF305-40-11-12	1SFL587102R1211
	100...250	100...250	1	1	AF305-40-11-13	1SFL587102R1311
	250...500	250...500	1	1	AF305-40-11-14	1SFL587102R1411
525	24...60	20...60	1	1	AF370-40-11-11	1SFL607102R1111
	48...130	48...130	1	1	AF370-40-11-12	1SFL607102R1211
	100...250	100...250	1	1	AF370-40-11-13	1SFL607102R1311
	250...500	250...500	1	1	AF370-40-11-14	1SFL607102R1411

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

# AF116 ... AF370 4 pole contactors

## Main accessories

Main accessories (other accessories available)



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

<sup>(1)</sup> Total number of auxiliary contact blocks for the two contactors.

<sup>(2)</sup> Interlock type, according to the contactor ratings (see "Accessories").

# AF116 ... AF370 4 pole contactors

## Main accessories





CAL19-11

### Side-mounted instantaneous auxiliary contact blocks

For contactors

AF116 ... AF370

Auxiliary contacts

	
1	1
1	1

Part Number

CAL19-11  
CAL19-11B

Product Hierarchy 1700010  
Order Code

1SFN010820R1011  
1SFN010820R3311

### Mechanical interlock unit

AF116 ... AF370

AF116 ... AF146 and AF190, AF205

AF190, AF205 and AF265 ... AF370

VM19

VM140/190

VM205/265

1SFN030300R1000

1SFN034403R1000

1SFN035203R1000

### Terminal shrouds

AF116 ... AF140, with compression lugs

AF190 ... AF205, with cable clamps

AF190 ... AF205, with compression lugs

AF265 ... AF370, with cable clamps

AF265 ... AF370, with compression lugs

LT140-40L

LT205-40C

LT205-40L

LT370-40C

LT370-40L

1SFN124203R2000

1SFN124801R2000

1SFN124803R2000

1SFN125401R2000

1SFN125403R2000



VM19

### Terminal enlargements

For contactors

AF190 ... AF205

AF265 ... AF370

Dimensions

hole Ø mm	bar mm
10.5	20 x 5
10.5	25 x 5

Part Number

LW205-40  
LW370-40

Product Hierarchy 1700010  
Order Code

1SFN074807R2000

1SFN075407R2000



# EK550, EK1000 4 pole contactors

## 800 to 1000A AC-1 AC/DC operated 1NO+1NC aux



1SFC800P-069

EK1000-40-11

### Description

EK550 4-pole contactors are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...) and generally for controlling power circuits up to 1000 V AC and 600 V DC, EK1000 up to 1000 V AC.

These contactors are of the block type design with:

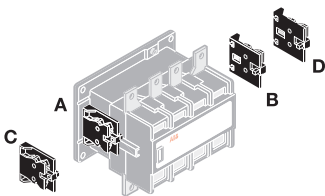
- 4 main poles
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated operational current $\leq 55^\circ\text{C}$ 440 V DC-1 A	UL / CSA General use rating 440 V DC A	Rated control circuit voltage $U_c^{(1)}$		Part Number	Product Hierarchy 1700002 Order Code	
		V 50 Hz	V 60 Hz			
800	540	48	-	1 1	EK550-40-11	SK827041-AD
		110	120	1 1	EK550-40-11	SK827041-AF
		220...230	-	1 1	EK550-40-11	SK827041-AL
		230...240	-	1 1	EK550-40-11	SK827041-AM
		400...415	-	1 1	EK550-40-11	SK827041-AR
1000	-	48	-	1 1	EK1000-40-11	SK827044-AD
		110	120	1 1	EK1000-40-11	SK827044-AF
		220...230	-	1 1	EK1000-40-11	SK827044-AL
		230...240	-	1 1	EK1000-40-11	SK827044-AM
		400...415	-	1 1	EK1000-40-11	SK827044-AR

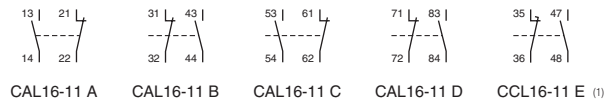
<sup>(1)</sup> Other control voltages see voltage code table.

## Accessories EK550, EK1000

Mounting positions of the auxiliary contact



Auxiliary contact types and connecting diagrams



<sup>(1)</sup> Contact 35-36 used for some types of EK... contactors

### EK 4 pole contactors

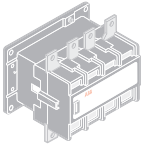

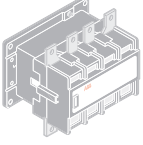


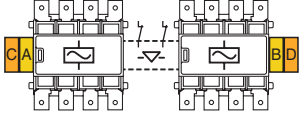
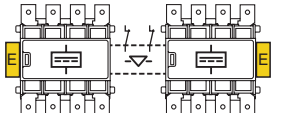
Contactor types	Main poles	Available auxiliary contacts	Add-on auxiliary contact blocks	Mounting and positioning
			2-pole CAL16-11 ...	
AC operated, 50 Hz, 60 Hz or 50/60 Hz				
EK550, EK1000	4	0 1 1	+ 1 x CAL16-11B + 1 x CAL16-11C + 1 x CAL16-11D	
DC operated				
EK550, EK1000	4	0 2 1	+ 1 x CAL16-11C	

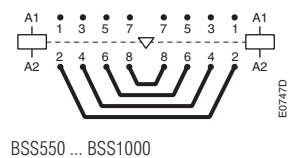
# EK550, EK1000 4 pole contactors

## Accessories

### Main accessory fitting details

#### EK 4 pole reversing contactors with VH800 mechanical and electrical interlock units



"Left hand" contactors	Interlocking	"Right hand" contactors	Add-on auxiliary contact blocks	Mounting and positioning
			2-pole CAL16-11 ...	 Factory mounted auxiliary contacts  Add-on CAL16-11 auxiliary contacts
AC operated, 50 Hz, 60 Hz or 50/60 Hz				
EK550, EK1000	VH800	EK550, EK1000	+ 1 x CAL16-11C 1 x CAL16-11D	
DC operated				
EK550, EK1000	VH800	EK550, EK1000	—	



BSS550 ... BSS1000

### Side-mounted auxiliary contact blocks

For contactors

Auxiliary contacts	Part Number	Product Hierarchy 1700002 Order Code
 		
1 1	CAL16-11B	SK829002-B
1 1	CAL16-11C	SK829002-C
1 1	CAL16-11D	SK829002-D
1 1	CCL16-11E <sup>(2)</sup>	SK829002-E

### Mechanical interlock unit for two horizontal mounted contactors

EK550, EK1000	VH800	SK829070-F
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### Connecting sets

EK550	BSS550	SK829090-E
EK1000	BSS1000	SK829090-H

### Surge suppressors

For contactors	Rated control circuit voltage U <sub>c</sub> V	AC	DC	Part Number	Product Hierarchy 1700002 Order Code
EK550, EK1000	48...110	—	—	RC-EH800/110	SK829007-C
EK550, EK1000	24...125	—	—	RC-EH800/110	SK829007-C
EK550, EK1000	220...600	—	—	RC-EH800/600	SK829007-D

<sup>(1)</sup> See "Main accessory fitting details" table.

<sup>(2)</sup> Mounting of CCL16-11E blocks does not allow an additional second block to be added on top of it. All DC operated EK contactors are equipped with one CCL16-11E on the right side.



RC-EH

# GA75 & GAE75 1 pole contactors

## 100A DC-1 AC or DC operated





GA75-10-11

### Description

GA75 & GAE75 contactors are designed for controlling shunt or series motors and resistive or slightly inductive loads up to 1000 V DC. These contactors are of the block type design with 3 main poles connected in series.

- main poles arc chutes fitted with permanent magnets specially designed for DC breaking. The connection polarities must be respected.
- control circuit: AC operated
- add-on auxiliary contact blocks for side mounting and a wide range of accessories.

IEC Rated operational current $\leq 55^\circ\text{C}$ 440 V DC-1 A	UL / CSA General use rating 440 V DC A	Rated control circuit voltage $U_c^{(1)}$		Auxiliary contacts		Part Number	Product Hierarchy 1700003 Order Code
		V 50 Hz	V 60 Hz				

### GA75 - AC operated

100	100	24	24	0	0	GA75-10-00	1SBL411025R8100
				1	1	GA75-10-11	1SBL411025R8111
		48	48	0	0	GA75-10-00	1SBL411025R8300
				1	1	GA75-10-11	1SBL411025R8311
		110	110...120	0	0	GA75-10-00	1SBL411025R8400
				1	1	GA75-10-11	1SBL411025R8411
		220...230	230...240	0	0	GA75-10-00	1SBL411025R8000
				1	1	GA75-10-11	1SBL411025R8011
		230...240	240...260	0	0	GA75-10-00	1SBL411025R8800
				1	1	GA75-10-11	1SBL411025R8811
380...400	400...415	0	0	GA75-10-00	1SBL411025R8500		
		1	1	GA75-10-11	1SBL411025R8511		
400...415	415...440	0	0	GA75-10-00	1SBL411025R8600		
		1	1	GA75-10-11	1SBL411025R8611		

### GAE75 - DC operated

100	100	12	12	0	0	GAE75-10-00	1SBL419025R8000
				1	1	GAE75-10-11	1SBL419025R8011
		24	24	0	0	GAE75-10-00	1SBL419025R8100
				1	1	GAE75-10-11	1SBL419025R8111
		48	48	0	0	GAE75-10-00	1SBL419025R8300
				1	1	GAE75-10-11	1SBL419025R8311
		60	60	0	0	GAE75-10-00	1SBL419025R8400
				1	1	GAE75-10-11	1SBL419025R8411
		110	110	0	0	GAE75-10-00	1SBL419025R8600
				1	1	GAE75-10-11	1SBL419025R8611
		125	125	0	0	GAE75-10-00	1SBL419025R8700
				1	1	GAE75-10-11	1SBL419025R8711
		220	220	0	0	GAE75-10-00	1SBL419025R8800
				1	1	GAE75-10-11	1SBL419025R8811
		240	240	0	0	GAE75-10-00	1SBL419025R8900
				1	1	GAE75-10-11	1SBL419025R8911

<sup>(1)</sup> Other control voltages see voltage codes table.



GAE75-10-11

# GAF185 ... GAF2050 3 pole contactors

## 250 to 1750A DC-1 AC/DC operated 1NO+1NC aux



GAF185-10-11



GAF300-10-11



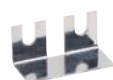
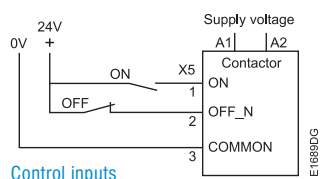
GAF750-10-11



GAF1650-10-11



GAF1250-10-11



LP185



LP2050

### Description

GAF185 ... GAF2050 contactors are designed for controlling resistive or slightly inductive loads up to 1000 V DC.

These contactors are of the block type design with 3 main poles for connection in series by the user according to conductor cross-sectional area or by using LP connection bars to be ordered separately.

### GAF185 ... GAF300

IEC Rated operational current ≤ 55 °C 1000 V DC-1 A	UL / CSA General use rating ≤ 40 °C 1000 V DC A	Rated control circuit voltage Uc		Auxiliary contacts		Part Number	Product Hierarchy 1700001 Order Code
		V 50/60 Hz	V DC	NO	NC		
250	250 <sup>(2)</sup>	-	20...60	1	1	GAF185-10-11 <sup>(1)</sup>	1SFL497025R7211
		48...130	48...130	1	1	GAF185-10-11	1SFL497025R6911
		100...250	100...250	1	1	GAF185-10-11	1SFL497025R7011
400	400	-	20...60	1	1	GAF300-10-11 <sup>(1)</sup>	1SFL557025R7211
		48...130	48...130	1	1	GAF300-10-11	1SFL557025R6911
		100...250	100...250	1	1	GAF300-10-11	1SFL557025R7011

### GAF460 ... GAF750

600	650	-	24...60	1	1	GAF460-10-11 <sup>(1)</sup>	1SFL597025R6811
		48...130	48...130	1	1	GAF460-10-11	1SFL597025R6911
		100...250	100...250	1	1	GAF460-10-11	1SFL597025R7011
875	900	250...500	250...500	1	1	GAF460-10-11	1SFL597025R7111
		-	24...60	1	1	GAF750-10-11 <sup>(1)</sup>	1SFL637025R6811
		48...130	48...130	1	1	GAF750-10-11	1SFL637025R6911
		100...250	100...250	1	1	GAF750-10-11	1SFL637025R7011
		250...500	250...500	1	1	GAF750-10-11	1SFL637025R7111

### GAF1250 ... GAF2050

1040	1210	-	24...60	1	1	GAF1250-10-11	1SFL647025R6811
		48...130	48...130	1	1	GAF1250-10-11	1SFL647025R6911
		100...250	100...250	1	1	GAF1250-10-11	1SFL647025R7011
		250...500	250...500	1	1	GAF1250-10-11	1SFL647025R7111
1450	1650	100...250	100...250	1	1	GAF1650-10-11	1SFL677025R7011
1750	2050	100...250	100...250	1	1	GAF2050-10-11	1SFL707025R7011

<sup>(1)</sup> The connection polarities indicated close to the coil terminals must be respected: A1 for the positive pole and A2 for the negative pole.

<sup>(2)</sup> At 660 V DC.

GAF460 ... AF2050 are equipped with low voltage inputs for control, for example by a PLC

### Accessories

For contactors

Auxiliary contact blocks, low energy microswitch 0.1 A, N.O. or N.C.

For contactors	Auxiliary contacts		Part Number	Product Hierarchy 1700009 Order Code
GAF185 ... GAF2050	0	1	CEL18-01	1SFN010716R1001
	1	0	CEL18-10	1SFN010716R1010

Connection bar for contactor

GAF185	LP185	1SFN074712R1000
GAF300	LP300	1SFN075112R1000
GAF460	LP460	1SFN075712R1000
GAF750	LP750	1SFN076112R1000
GAF1250	LP1250	1SFN076412R1000
GAF1650, GAF2050	LP2050	1SFN076512R1000

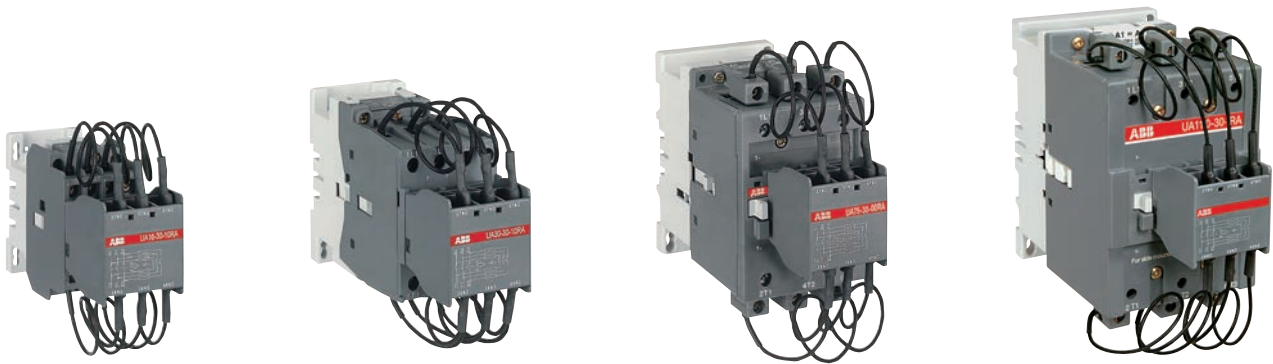
# Contactors for capacitor switching

## The ABB solutions

ABB offers 2 contactor versions according to the value of the inrush current peak and the power of the capacitor bank.

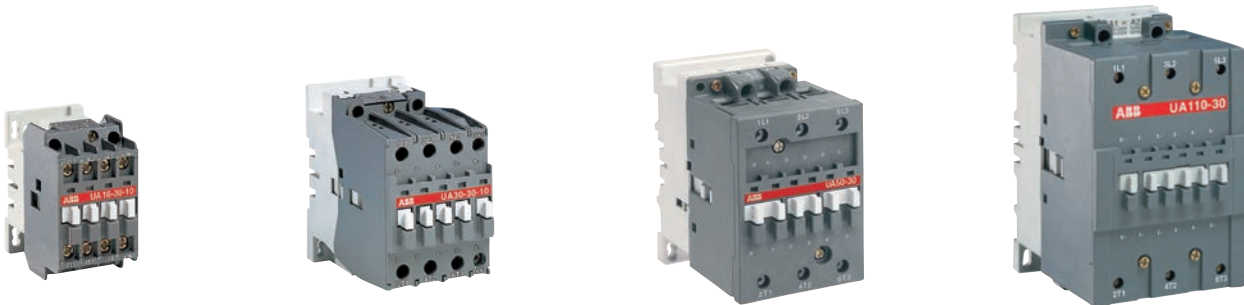
UA..RA contactors for capacitor switching (UA16..RA to UA110..RA) with insertion of damping resistors

The insertion of damping resistors protects the contactor and the capacitor from the highest inrush currents.



UA contactors for capacitor switching (UA16 to UA110)

Maximum permissible peak current  $\hat{i} \leq 100$  times the nominal rms current of the switched capacitor.



Please consult us



# NF 4 pole contactor relays

## AC / DC operated



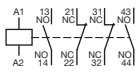
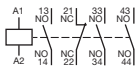
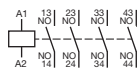
NF22E

### Description

NF contactor relays are used for switching auxiliary and control circuits.

These contactor relays are of the block type design with:

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

Number of contacts	Rated control circuit voltage Uc min. ... Uc max.		Part Number	Product Hierarchy 1700009 Order Code
	V 50/60 Hz	V DC		
	24...60	20...60	NF22E-11	1SBH137001R1122
	48...130	48...130	NF22E-12	1SBH137001R1222
	100...250	100...250	NF22E-13	1SBH137001R1322
	250...500	250...500	NF22E-14	1SBH137001R1422
	24...60	20...60	NF31E-11	1SBH137001R1131
	48...130	48...130	NF31E-12	1SBH137001R1231
	100...250	100...250	NF31E-13	1SBH137001R1331
	250...500	250...500	NF31E-14	1SBH137001R1431
	24...60	20...60	NF40E-11	1SBH137001R1140
	48...130	48...130	NF40E-12	1SBH137001R1240
	100...250	100...250	NF40E-13	1SBH137001R1340
	250...500	250...500	NF40E-14	1SBH137001R1440

# NFZ 4-pole contactor relays

## AC / DC operated - low consumption

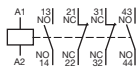
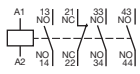
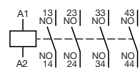


NFZ22E

### Description

As above description

- allow direct control by PLC-output  $\geq 24$  V DC 500 mA
- can withstand short voltage dips and voltage sags (SEMI F47-0706 conditions of use on request).

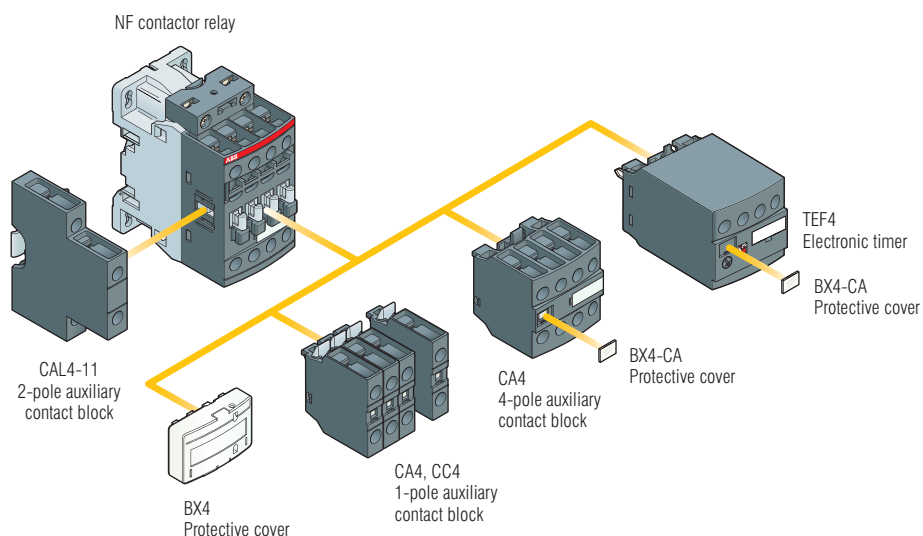
	-	12...20	NFZ22E-20	1SBH136001R2022
	24...60	20...60	NFZ22E-21	1SBH136001R2122
	48...130	48...130	NFZ22E-22	1SBH136001R2222
	100...250	100...250	NFZ22E-23	1SBH136001R2322
	-	12...20	NFZ31E-20	1SBH136001R2031
	24...60	20...60	NFZ31E-21	1SBH136001R2131
	48...130	48...130	NFZ31E-22	1SBH136001R2231
	100...250	100...250	NFZ31E-23	1SBH136001R2331
	-	12...20	NFZ40E-20	1SBH136001R2040
	24...60	20...60	NFZ40E-21	1SBH136001R2140
	48...130	48...130	NFZ40E-22	1SBH136001R2240
	100...250	100...250	NFZ40E-23	1SBH136001R2340

Note: Only NFZ contactor relays with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole.

# NF 4 pole contactor relays

## Main accessories

Contactor relays and main accessories (other accessories available)



### Main accessory fitting details

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

Contactor relay types	Main poles	Front-mounted accessories			Electronic timer		Side-mounted accessories	
		Auxiliary contact blocks			TEF4		Left side	Right side
		1-pole CA4 1-pole CC4	4-pole CA4			2-pole CAL4-11		
Max. add-on N.C. auxiliary contacts: 3 N.C. max. on positions 1, 2, 3, 4 and 2 N.C. max. on positions 1 ±30°, 5								
NF	2 2 E	4 max.	or 1	or 1	+	1	-	
	3 1 E	2 max.	-	or 1	+	1	+ 1	
Max. add-on N.C. auxiliary contacts: 4 N.C. max. on positions 1, 2, 3, 4 and 3 N.C. max. on positions 1 ±30°, 5								
NF	4 0 E	4 max.	or 1	or 1	+	1	-	
		2 max.	-	or 1	+	1	+ 1	

# NF 4 pole contactor relays

## Main accessories



CA4-10



CA4-22N



CAL4-11



TEF4-ON



LDC4



BX4



BX4-CA

### Description

For contactor relays	Auxiliary contacts		Part Number	Product Hierarchy 1700009 Order Code

#### Front-mounted instantaneous auxiliary contact blocks

4-pole NF	1	0	-	-	Part Number	Product Hierarchy 1700009 Order Code
	1	0	-	-	CA4-10	1SBN010110R1010
	1	0	-	-	CA4-10-T	1SBN010110T1010
	0	1	-	-	CA4-01	1SBN010110R1001
	0	1	-	-	CA4-01-T	1SBN010110T1001
	4	0	-	-	CA4-40N	1SBN010140R1240
	3	1	-	-	CA4-31N	1SBN010140R1231
	2	2	-	-	CA4-22N	1SBN010140R1222
NF..40E	1	3	-	-	CA4-13N	1SBN010140R1213
	0	4	-	-	CA4-04N	1SBN010140R1204

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

4-pole NF	-	-	1	0	Part Number	Product Hierarchy 1700009 Order Code
	-	-	1	0	CC4-10	1SBN010111R1010
	-	-	0	1	CC4-01	1SBN010111R1001

#### Side-mounted instantaneous auxiliary contact blocks

NF	1	1	-	-	Part Number	Product Hierarchy 1700009 Order Code
	1	1	-	-	CAL4-11	1SBN010120R1011
	1	1	-	-	CAL4-11-T	1SBN010120T1011

#### For contactors

For contactors	Time delay range selected by switch	Delay type	Auxiliary contacts		Part Number	Product Hierarchy 1700009 Order Code

#### Electronic timers

NF	Time delay range selected by switch	Delay type			Part Number	Product Hierarchy 1700009 Order Code
	0.1...1 s	ON-delay	1	1	TEF4-ON	1SBN020112R1000
	1...10 s	OFF-delay	1	1	TEF4-OFF	1SBN020114R1000
	10...100 s					

Note: Rated control circuit voltage U<sub>c</sub> 24...240 V 50/60 Hz or DC.

#### Additional coil terminal block

NF	Part Number	Product Hierarchy 1700009 Order Code
	LDC4	1SBN070156T1000

#### Protective covers

Protective covers	Part Number	Product Hierarchy 1700009 Order Code
All 1-stack contactor relays	BX4	1SBN110108T1000
4-pole CA4 auxiliary contact blocks and TEF4 electronic timer	BX4-CA	1SBN110109W1000

# Mini contactors

## 3 & 4 Pole contactors and relays

AC3 380/415v		Aux Contacts		Description	Product Hierarchy 1700004 Order Code
kW	A	NO	NC		

### Contactors

#### 3 pole contactors • Flat Pin Terminals



B6-30-10

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
4	16	-	1	B6-30-01 230AC	GJL1211001R8010
				B6-30-01 110AC	GJL1211001R8014
				B6-30-01 24AC	GJL1211001R0011
		1	-	B6-30-01-F 220AC •	GJL1211003R8010
				B6-30-01-F 110AC •	GJL1211003R8014
				B6-30-01-F 24AC •	GJL1211003R0011
-	1	-	B6-30-10 110AC	GJL1211001R8104	
			B6-30-10 230AC	GJL1211001R8100	
			B6-30-10 24AC	GJL1211001R0101	
			B6-30-10 400AC	GJL1211001R8105	



B6-30-10F

#### 4 pole contactors • Flat Pin Terminals

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
4	16	-	-	B6-40-00 110AC	GJL1211201R8004
				B6-40-00 230AC	GJL1211201R8000
				B6-40-00 24AC	GJL1211201R0001
				B6-40-00-F 230AC •	GJL1211203R8000



B6-30-10P

#### 3 pole contactors • Screw Terminals

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
5.5	20	-	1	B7-30-01 230AC	GJL1311001R8010
				B7-30-10 110AC	GJL1311001R8104
		1	-	B7-30-10 230AC	GJL1311001R8100
				B7-30-10 24AC	GJL1311001R0101

#### 3 pole DC contactors • Flat Pin Terminals

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
4	16	-	1	BC6-30-01 110DC	GJL1213001R0014
				BC6-30-01 24DC	GJL1213001R0011
				BC6-30-01-F 24DC •	GJL1213003R0011
5.5	20	1	-	BC6-30-10 24DC	GJL1213001R0101
				BC6-30-10-1.4 24DC	GJL1213001R8101
				BC7-30-10 24DC	GJL1313001R0101



B7-30-10

### Compact reversing contactors

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
-	-	-	1	VB6-30-01 110AC	GJL1211901R8014
				VB6-30-10 110AC	GJL1211901R8104
				VB6-30-10 230AC	GJL1211901R8100
		1	-	VB6-30-10 24AC	GJL1211901R0101
				VB6A-30-10 230AC	GJL1211911R8100
				VBC6-30-10 24DC	GJL1213901R0101
-	-	-	-	VB6A-40-00 220-240V 40-450HZ	GJL1211911R8000



B7-40-10

### Mini contactor relays

kW	A	Aux Contacts		Description	Product Hierarchy 1700004 Order Code
		NO	NC		
-	-	2	2	K6-22Z 110AC	GJH1211001R8224
				K6-22Z 230AC	GJH1211001R8220
		3	1	K6-31Z 230AC	GJH1211001R8310
				2	2
KC6-22Z 24DC	GJH1213001R0221				

# Mini contactors

## Thermal overloads and accessories

### T16 Overloads

The T16 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications



### T16 0.10 ... 16A

Setting range A	Short-circuit protective device	Trip class	Type	Product Hierarchy 1700006 Order Code
0.10 ... 0.13	0.5 A, fuse type T	10	T16-0.13	1SAZ711201R1005
0.13 ... 0.17	1.0 A, fuse type T	10	T16-0.17	1SAZ711201R1008
0.17 ... 0.23	1.0 A, fuse type T	10	T16-0.23	1SAZ711201R1009
0.23 ... 0.31	1.0 A, fuse type T	10	T16-0.31	1SAZ711201R1013
0.31 ... 0.41	2.0 A, fuse type gG	10	T16-0.41	1SAZ711201R1014
0.41 ... 0.55	2.0 A, fuse type gG	10	T16-0.55	1SAZ711201R1017
0.55 ... 0.74	4.0 A, fuse type gG	10	T16-0.74	1SAZ711201R1021
0.74 ... 1.00	6.0 A, fuse type gG	10	T16-1.0	1SAZ711201R1023
1.00 ... 1.30	6.0 A, fuse type gG	10	T16-1.3	1SAZ711201R1025
1.30 ... 1.70	10.0 A, fuse type gG	10	T16-1.7	1SAZ711201R1028
1.70 ... 2.30	10.0 A, fuse type gG	10	T16-2.3	1SAZ711201R1031
2.30 ... 3.10	10.0 A, fuse type gG	10	T16-3.1	1SAZ711201R1033
3.10 ... 4.20	20.0 A, fuse type gG	10	T16-4.2	1SAZ711201R1035
4.20 ... 5.70	20.0 A, fuse type gG	10	T16-5.7	1SAZ711201R1038
5.70 ... 7.60	35.0 A, fuse type gG	10	T16-7.6	1SAZ711201R1040
7.60 ... 10.0	35.0 A, fuse type gG	10	T16-10	1SAZ711201R1043
10.0 ... 13.0	40.0 A, fuse type gG	10	T16-13	1SAZ711201R1045
13.0 ... 16.0	40.0 A, fuse type gG	10	T16-16	1SAZ711201R1047

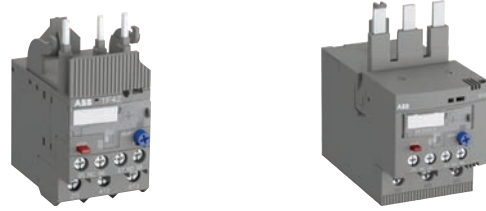
### Accessories

Description	Product Hierarchy 1700004 Order Code
LB6 Soldering receptacle 5-POL.	GJL1201902R0001
BSM6-30 Reversing connecting link	GJL1201908R0001
RV-BC6/60 Varistor	GHV2501902R0002
CAF6-02M Top Mount Aux Block	GJL1201330R0011
CAF6-11M Top Mount Aux Block	GJL1201330R0003
CAF6-20M Top Mount Aux Block	GJL1201330R0007
LB6 Soldering receptacle 5-POL.	GJL1201902R0001
BSM6-30 Reversing connecting link	GJL1201908R0001



# Thermal and electronic overload relays

## Thermal overload relays



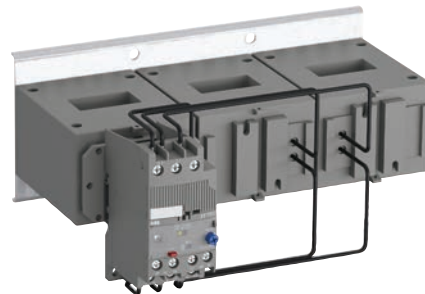
IEC: rated operational power AC-3	400 V	4.0 ... 18.5 kW	18.5 ... 30 kW
UL/CSA: 3-phase hp-ratings	480 V	5 ... 20 hp	30 ... 60 hp
Fitting to contactors		AF09 ... AF38	AF40, AF52, AF65
Type		TF42	TF65
Current range		0.10 ... 38 A	22 ... 67 A
Trip class		10	10
Single mounting kit		DB42	-

## Electronic overload relays with integrated CT

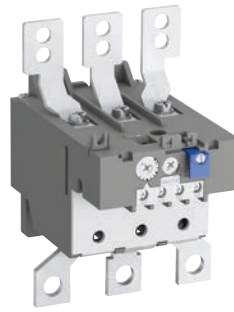


IEC: rated operational power AC-3	400 V	4 ... 7.5 kW	4.0 ... 18.5 kW	18.5 ... 30 kW
UL/CSA: 3-phase hp-ratings	480 V	5 ... 10 hp	5 ... 20 hp	30 ... 60 hp
Fitting to contactors		AF09 ... AF16	AF26 ... AF38	AF40, AF52, AF65
Type		EF19	EF45	EF65
Current range		0.10 ... 18.9 A	9 ... 45 A	20 ... 70 A
Trip class				
Single mounting kit		DB19EF	-	-

## Electronic overload relay with external separate CT



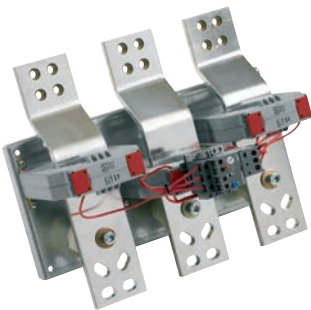
IEC: rated operational power AC-3	400 V	315 ... 400 kW	
UL/CSA: 3-phase hp-ratings	480 V	500 ... 600 hp	
Fitting to contactors		AF580, AF750, AF1250	
Type		EF750	
Current range		250 ... 800 A	
Trip class			



37 ... 45 kW	55 ... 75 kW	90 ... 110 kW
60 hp	75 ... 100 hp	125 ... 150 hp
AF80, AF96	AF116, AF140	AF190, AF205
<b>TF96</b>	<b>TF140DU</b>	<b>TA200DU</b>
40 ... 96 A	66 ... 142 A	66 ... 200 A
10	10A	10A
-	-	DB200



37 ... 45 kW	55 ... 75 kW	90 ... 110 kW	132 ... 200 kW
60 hp	75 ... 100 hp	125 ... 150 hp	200 ... 350 hp
AF80, AF96	AF116, AF140, AF146	AF190, AF205	AF265, AF305, AF370
<b>EF96</b>	<b>EF146</b>	<b>EF205</b>	<b>EF370</b>
36 ... 100 A	54 ... 150 A	63 ... 210 A	115 ... 380 A
	10E, 20E, 30E selectable		
-	-	-	-



475 ... 560 kW
800 ... 900 hp
AF1350, AF1650
<b>E1250DU</b>
375 ... 1250 A
10E, 20E, 30E selectable

# TF42 & TF65 thermal overload relays

## 0.10 to 67.0 A

### Description

The TF42 & TF65 thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The devices have trip class 10.

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications



TF42

### TF42 0.10 to 38.0A

Setting range A	Short-circuit protective device	Trip class	Part Number	Product Hierarchy 1700006 Order Code
0.10 ... 0.13	0.5 A, fuse type T	10	TF42-0.13	1SAZ721201R1005
0.13 ... 0.17	1.0 A, fuse type T	10	TF42-0.17	1SAZ721201R1008
0.17 ... 0.23	1.0 A, fuse type T	10	TF42-0.23	1SAZ721201R1009
0.23 ... 0.31	1.0 A, fuse type T	10	TF42-0.31	1SAZ721201R1013
0.31 ... 0.41	2.0 A, fuse type gG	10	TF42-0.41	1SAZ721201R1014
0.41 ... 0.55	2.0 A, fuse type gG	10	TF42-0.55	1SAZ721201R1017
0.55 ... 0.74	4.0 A, fuse type gG	10	TF42-0.74	1SAZ721201R1021
0.74 ... 1.00	6.0 A, fuse type gG	10	TF42-1.0	1SAZ721201R1023
1.00 ... 1.30	6.0 A, fuse type gG	10	TF42-1.3	1SAZ721201R1025
1.30 ... 1.70	10.0 A, fuse type gG	10	TF42-1.7	1SAZ721201R1028
1.70 ... 2.30	10.0 A, fuse type gG	10	TF42-2.3	1SAZ721201R1031
2.30 ... 3.10	10.0 A, fuse type gG	10	TF42-3.1	1SAZ721201R1033
3.10 ... 4.20	20.0 A, fuse type gG	10	TF42-4.2	1SAZ721201R1035
4.20 ... 5.70	20.0 A, fuse type gG	10	TF42-5.7	1SAZ721201R1038
5.70 ... 7.60	35.0 A, fuse type gG	10	TF42-7.6	1SAZ721201R1040
7.60 ... 10.0	35.0 A, fuse type gG	10	TF42-10	1SAZ721201R1043
10.0 ... 13.0	40.0 A, fuse type gG	10	TF42-13	1SAZ721201R1045
13.0 ... 16.0	40.0 A, fuse type gG	10	TF42-16	1SAZ721201R1047
16.0 ... 20.0	63.0 A, fuse type gG	10	TF42-20	1SAZ721201R1049
20.0 ... 24.0	63.0 A, fuse type gG	10	TF42-24	1SAZ721201R1051
24.0 ... 29.0	63.0 A, fuse type gG	10	TF42-29	1SAZ721201R1052
29.0 ... 35.0	80.0 A, fuse type gG	10	TF42-35	1SAZ721201R1053
35.0 ... 38.0/40.0	80.0 A, fuse type gG	10	TF42-38	1SAZ721201R1055



TF42 + DB42



TF65

### TF65 22.0 to 67.0A

22.0 ... 28.0	80 A, gG Type Fuses	10	TF65-28	1SAZ811201R1001
25.0 ... 33.0	80 A, gG Type Fuses	10	TF65-33	1SAZ811201R1002
30.0 ... 40.0	100 A, gG Type Fuses	10	TF65-40	1SAZ811201R1003
36.0 ... 47.0	125 A, gG Type Fuses	10	TF65-47	1SAZ811201R1004
44.0 ... 53.0	125 A, gG Type Fuses	10	TF65-53	1SAZ811201R1005
50.0 ... 60.0	125 A, gG Type Fuses	10	TF65-60	1SAZ811201R1006
57.0 ... 67.0	160 A, gG Type Fuses	10	TF65-67	1SAZ811201R1007



KPR-101L

### Accessories

Suitable for	Description	Part Number	Product Hierarchy 1700006 Order Code
TF42	Single mounting kit	DB42	1SAZ701902R0001
TF42 - TF65	Reset push button	KPR-101L	1SFA616162R1014



DB42

# TF96 ... TA200DU thermal overload relays

## 40.0 to 200 A



TF96

### Description

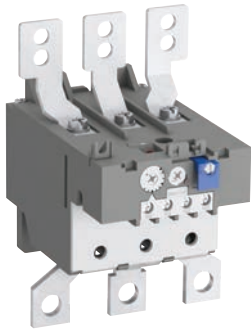
The TF96, TF140 and TA200DU thermal overload relays are economic electromechanical protection devices for the main circuit. They offer reliable protection for motors in the event of overload or phase failure. The TF96 have trip class 10, TF140DU & TA200DU class 10A

The thermal overload relays are three pole relays with bimetal tripping elements. The motor current flows through the bimetal tripping elements and heats them directly and indirectly. In case of an overload (over current), the bimetal elements bent as a result of the heating. This leads to a release of the relay and a change of the contacts switching position (95-96 / 97-98).

- Manual or automatic reset selectable
- Phase loss sensitive acc. to IEC/EN 60947-4-1
- TEST and STOP function – Trip indication on the front
- Temperature compensation
- Suitable for three- and single-phase applications



TF140DU



TA200DU

Setting range A	Short-circuit protective device	Trip class	Part Number	Product Hierarchy 1700006 Order Code
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### TF96 40.0 to 96.0A

40.0 ... 51.0	125 A, gG Type Fuses	10	TF96-51	1SAZ911201R1001
48.0 ... 60.0	160 A, gG Type Fuses	10	TF96-60	1SAZ911201R1002
57.0 ... 68.0	160 A, gG Type Fuses	10	TF96-68	1SAZ911201R1003
65.0 ... 78.0	200 A, gG Type Fuses	10	TF96-78	1SAZ911201R1004
75.0 ... 87.0	200 A, gG Type Fuses	10	TF96-87	1SAZ911201R1005
84.0 ... 96.0	250 A, gG Type Fuses	10	TF96-96	1SAZ911201R1006

### TF140DU 66.0 to 142A

				Product Hierarchy 1700007 Order Code
66 ... 90	200 A, fuse type gG	10A	TF140DU-90	1SAZ431201R1001
80 ... 110	224 A, fuse type gG	10A	TF140DU-110	1SAZ431201R1002
100 ... 135	224 A, fuse type gG	10A	TF140DU-135	1SAZ431201R1003
110 ... 142	250 A, fuse type gG	10A	TF140DU-142	1SAZ431201R1004

### TA200DU 66.0 to 200A

66 ... 90	200 A, fuse type gG / 125 A aM	10A	TA200DU-90	1SAZ421201R1001
80 ... 110	224 A, fuse type gG / 160 A aM	10A	TA200DU-110	1SAZ421201R1002
100 ... 135	224 A, fuse type gG / 200 A aM	10A	TA200DU-135	1SAZ421201R1003
110 ... 150	250 A, fuse type gG / 200 A aM	10A	TA200DU-150	1SAZ421201R1004
130 ... 175	315 A, fuse type gG / 250 A aM	10A	TA200DU-175	1SAZ421201R1005
150 ... 200	315 A, fuse type gG / 250 A aM	10A	TA200DU-200	1SAZ421201R1006

### Accessories



KPR-101L

Suitable for	Description	Part Number	Product Hierarchy 1700007 Order Code
TF96 - TF140DU - TA200DU	Reset push button	KPR-101L	1SFA616162R1014
	Terminal shroud	LT200/A	1SAZ401901R1001
TA200DU	Single mounting kit	DB200	1SAZ401110R0001
	Reset push button*	KPR-101L	1SFA616162R1014

# EF19 ... E1250DU electronic overload relays

## 0.10 to 1250 A



EF19-19



EF45-30



EF65-70



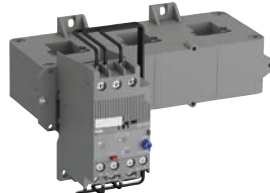
EF96-100



EF146-150



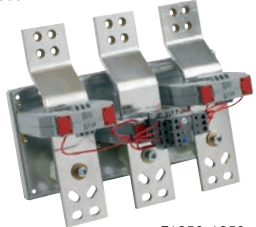
EF205-210



EF460-500



EF750-800



E1250-1250



DB19EF



KPR-101L

### Description

The EF19 and EF1250 are self-supplied electronic overload relays, which means no extra external supply is needed. It offers reliable protection for motors in the event of overload or phase failure. Easy to use like a thermal overload relay and compatible with standard motor applications, the electronic overload relay is convincing, above all, due to its wide setting range, high accuracy, high operational temperature range and the possibility to select a trip class (10E, 20E, 30E). Further features are the temperature compensation, trip contact (N.C.), signal contact (N.O.), automatic or manual reset selectable, trip-free mechanism, STOP and TEST function and a trip indication. EF19...EF380 overload relays are connected directly to the contactors. EF460...EF1250 require busbar kits that are available as an accessory for contactor mounting.

Setting range A	Short-circuit protective device	Trip class	Part Number	Product Hierarchy 1700006 Order Code
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### EF19 electronic overload relays

0.10 ... 0.32	1 A, fuse type gG	10E, 20E, 30E	EF19-0.32	1SAX121001R1101
0.30 ... 1.00	4 A, fuse type gG	10E, 20E, 30E	EF19-1.0	1SAX121001R1102
0.80 ... 2.70	10 A, fuse type gG	10E, 20E, 30E	EF19-2.7	1SAX121001R1103
1.90 ... 6.30	20 A, fuse type gG	10E, 20E, 30E	EF19-6.3	1SAX121001R1104
5.70 ... 18.9	50 A, fuse type gG	10E, 20E, 30E	EF19-18.9	1SAX121001R1105

### EF45 electronic overload relays

9.00 ... 30.0	160 A, fuse type gG	10E, 20E, 30E	EF45-30	1SAX221001R1101
15.0 ... 45.0	160 A, fuse type gG	10E, 20E, 30E	EF45-45	1SAX221001R1102

### EF65 ... EF146 electronic overload relays

20 ... 56	160 A, fuse type gG	10E, 20E, 30E	EF65-56	1SAX331001R1102
25 ... 70	160 A, fuse type gG	10E, 20E, 30E	EF65-70	1SAX331001R1101
36 ... 100	200 A, fuse type gG	10E, 20E, 30E	EF96-100	1SAX341001R1101
54 ... 150	315 A, fuse type gG	10E, 20E, 30E	EF146-150	1SAX351001R1101

### EF205 ... EF370 electronic overload relays

Product Hierarchy 1700007  
Order Code

63 ... 210	1250 A, fuse type gG	10E, 20E, 30E	EF205-210	1SAX531001R1101
115 ... 380	1600 A, fuse type gG	10E, 20E, 30E	EF370-380	1SAX611001R1101

### EF460 electronic overload relays

150 ... 500	690 V: 630 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	EF460-500	1SAX721001R1101
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### EF750 electronic overload relays

250 ... 800	690 V: 800 A, Type gG 1000 V: 1600 A, Type gG	10E, 20E, 30E	EF750-800	1SAX821001R1101
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### E1250DU electronic overload relays

375 ... 1250	-	10E, 20E, 30E	E1250DU-1250	1SFA739001R1000
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### Accessories

Suitable for	Description	Part Number	Product Hierarchy 1700006 Order Code
EF19	Single mounting kit	DB19EF	1SAX101910R1001
EF19 ... EF1250	Reset push button	KPR-101L	1SFA616162R1014



# Thermal & electronic overload relays

## General accessories



WRB-400



WRH-F

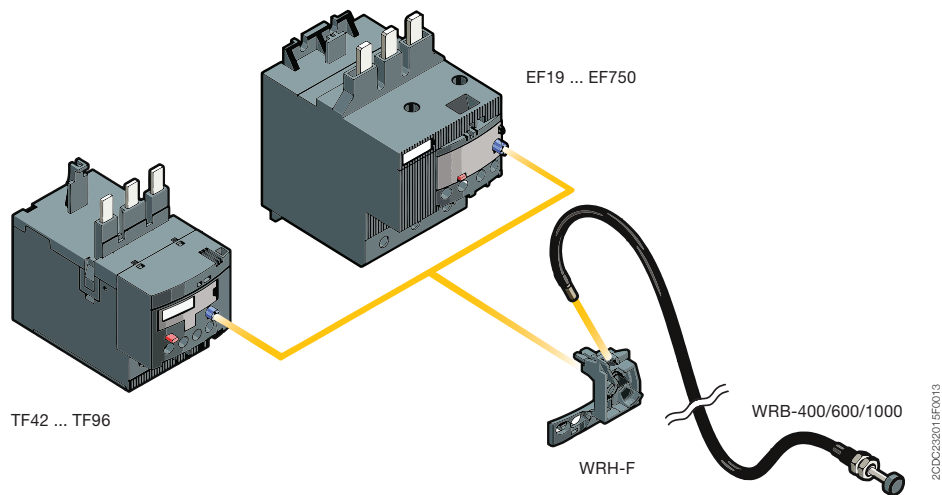
### Accessories

The wire reset is a general accessory for thermal and electronic overloads relays. In installations which are difficult to access, like a motor control centre or compact cubical, the accessory allows the user to remotely reset the overload relays.

The wire reset consists of two parts, the bowden wire with actuator and the holder. The actuator should be mounted into a door of a panel. The holder will be mounted on the overload relay. The actuator and holder are connected via the bowden wire.

Suitable for	Description	Length mm	Part Number	Product Hierarchy 1700009 Order Code
<b>Holder</b>				
TF42, TF65, TF96, EF19, EF45, EF65, EF96, EF146, EF205, EF370, EF460, EF750	Holder for tool less direct mounting		WRH-F	1SAZ701903R1001
<b>Bowden wire with actuator</b>				
WRH-F	Bowden wire with actuator, hole diameter: 7.3 mm, maximum panel thickness: 12 mm	400	WRB-400	1SAZ701903R1011
		600	WRB-600	1SAZ701903R1012
		1000	WRB-1000	1SAZ701903R1013
<b>IP54 gasket</b>				
WRB-400 WRB-600 WRB-1000	IP54 Panel seal gasket		WRBG	1SAZ701903R1030

### Overload relays with accessory wire reset (WRH, WRB)







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