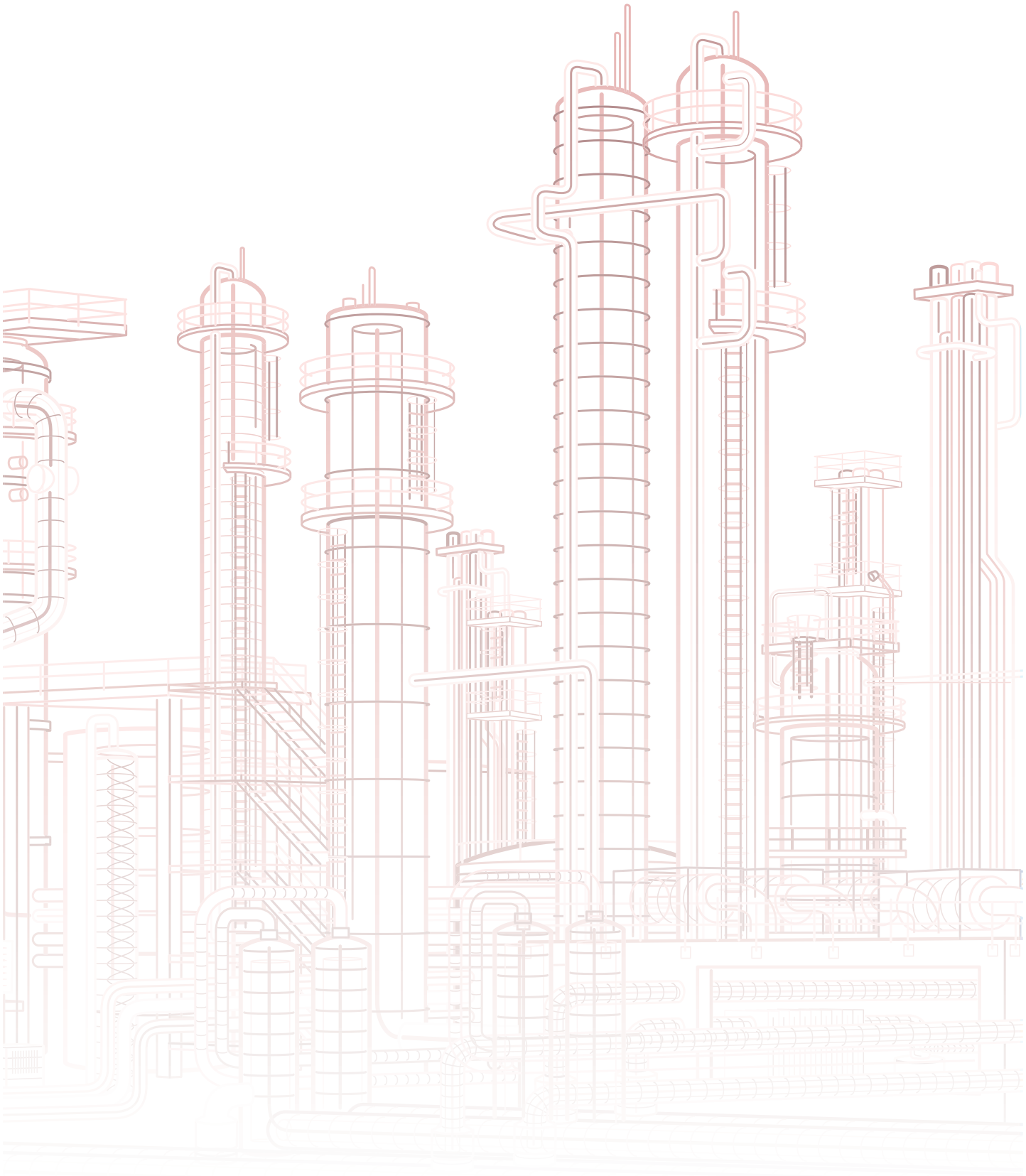


AF09 ... AF38 4-pole Contactors up to 55 A, AC-1



Overview 3

Ordering Details
– AF09 ... AF38 4-pole Contactors 4
– AF09Z ... AF38Z 4-pole Contactors - Low Consumption 5

Technical Data 6

Main Accessory Fitting Details 9

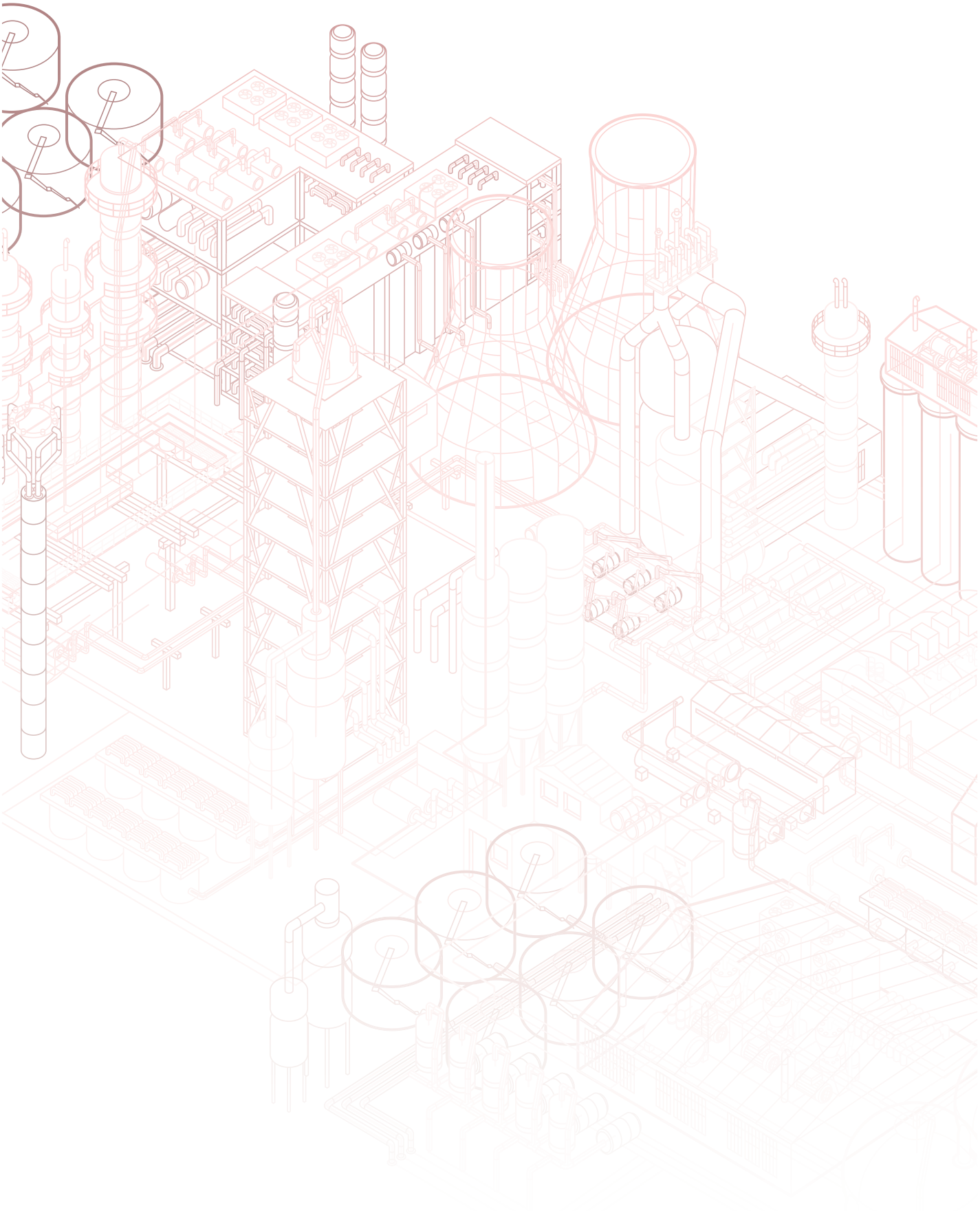
Accessory Ordering Details and Technical Data 10

Terminal Marking and Positioning 15

Dimensions 17

Index 19

1SBC 101 173 S0201



4-pole Contactors





AC / DC control voltage

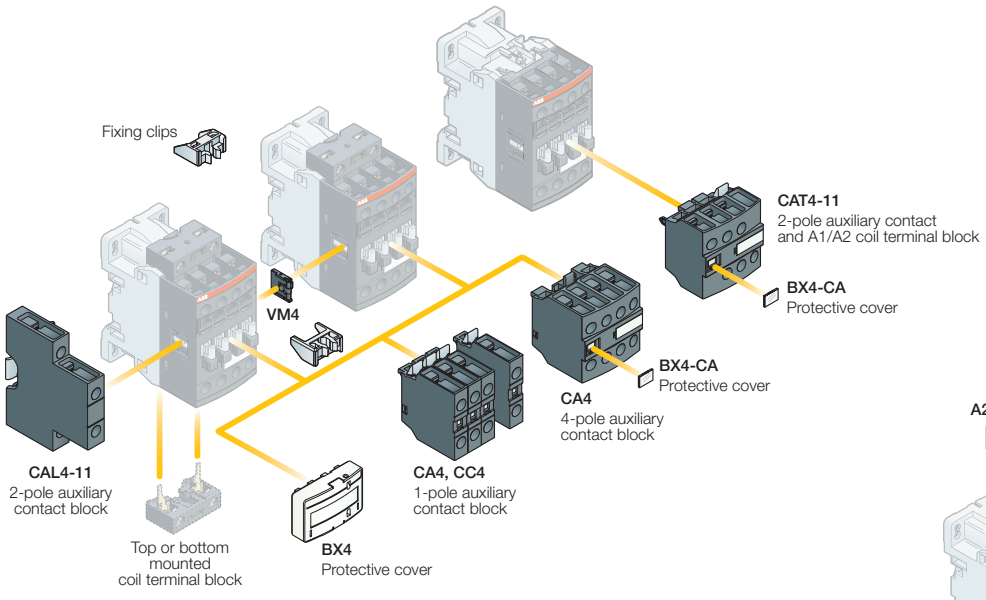
AF09	AF16	AF26	AF38
AF09-40-00	AF16-40-00	AF26-40-00	AF38-40-00
AF09-22-00	AF16-22-00	AF26-22-00	AF38-22-00

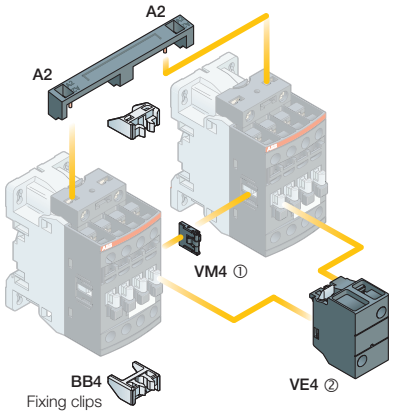
Switching of Resistive Circuits

IEC	AC-1	Rated operational current	θ ≤ 40 °C	690 V	**25 A**	**30 A**	**45 A**	**55 A**
			θ ≤ 60 °C	690 V	25 A	30 A	40 A	45 A
			θ ≤ 70 °C	690 V	22 A	26 A	32 A	37 A
		With conductor cross-sectional area			4 mm²	6 mm²	10 mm²	16 mm²
UL/CSA	**General use rating**			600 V AC	**25 A**	**30 A**	**45 A**	**55 A**
	With conductor cross-sectional area				AWG 10	AWG 10	AWG 8	AWG 6

Main Accessories

Auxiliary contact blocks	Front mounting	1-pole **CA4-10** or **CA4-01**, **CC4-10** or **CC4-01**
		4-pole **CA4**
		2-pole **CAT4-11** (with coil front connection)
	Side mounting	2-pole **CAL4-11**
Interlocks	Mechanical / electrical	**VEM4** including VM4 mechanical interlock unit and VE4 electrical interlock block with A2-A2 connection
	Mechanical	**VM4** including 2 fixing clips

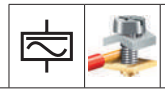




VEM4 mechanical and electrical interlock set including:
① **VM4** mechanical interlock unit including 2 fixing clips (BB4)
② **VE4** electrical interlock block with A2-A2 connection

1SBC 101 130 S2201

AF09 ... AF38 4-pole Contactors
AC / DC Operated - with Screw Terminals



cULus GOST C-Tick CE



AF09-40-00



AF26-40-00

Application

AF09 ... AF38 4-pole contactors are used for controlling power circuits up to 690 V AC and 440 V DC. They are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...).

Description

– **AF09 ... AF38** contactors include an electronic coil interface accepting a wide control voltage U_c min. ... U_c max. Only four coils cover control voltages between 24...500 V 50/60 Hz or 20...500 V DC
– **AF** contactors can manage large control voltage variations. One coil (e.g. 100...250 V 50/60 Hz - DC) can be used for different control voltages used worldwide without any coil change
– **AF** contactors have built-in surge protection and do not require additional surge suppressors.

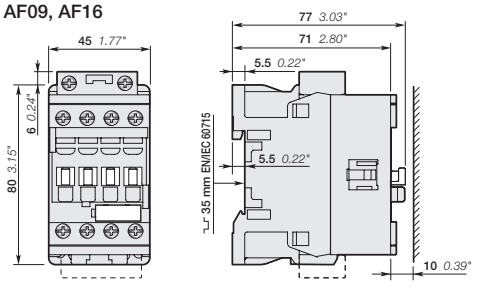
Note: - **AF..-..-..-11** not suitable for a direct control by PLC-output.
- **AF..-..-..-11** type available in some countries: please consult your ABB representative.

Ordering Details

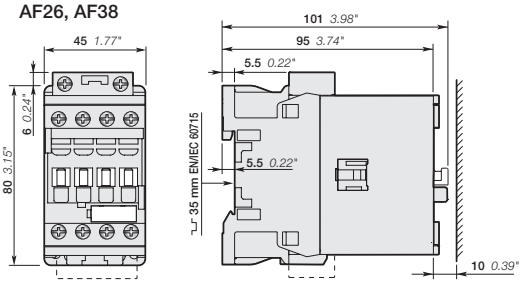
IEC	UL/CSA	Control voltage		Auxiliary contacts fitted		Type	Order code		Weight
AC-1 Rated current	General use rating	U_c min. ... U_c max.							Pack(ing)
θ ≤ 40 °C	600 V AC								1 piece
A	A	V 50/60 Hz	V DC						kg
4 N.O. Main Poles									
25	25	24...60	20...60	0	0	**AF09-40-00-11**	**1SBL 137 201 R1100**		0.270
		48...130	48...130	0	0	**AF09-40-00-12**	**1SBL 137 201 R1200**		0.270
		100...250	100...250	0	0	**AF09-40-00-13**	**1SBL 137 201 R1300**		0.270
		250...500	250...500	0	0	**AF09-40-00-14**	**1SBL 137 201 R1400**		0.310
30	30	24...60	20...60	0	0	**AF16-40-00-11**	**1SBL 177 201 R1100**		0.270
		48...130	48...130	0	0	**AF16-40-00-12**	**1SBL 177 201 R1200**		0.270
		100...250	100...250	0	0	**AF16-40-00-13**	**1SBL 177 201 R1300**		0.270
		250...500	250...500	0	0	**AF16-40-00-14**	**1SBL 177 201 R1400**		0.310
45	45	24...60	20...60	0	0	**AF26-40-00-11**	**1SBL 237 201 R1100**		0.360
		48...130	48...130	0	0	**AF26-40-00-12**	**1SBL 237 201 R1200**		0.360
		100...250	100...250	0	0	**AF26-40-00-13**	**1SBL 237 201 R1300**		0.360
		250...500	250...500	0	0	**AF26-40-00-14**	**1SBL 237 201 R1400**		0.400
55	55	24...60	20...60	0	0	**AF38-40-00-11**	**1SBL 297 201 R1100**		0.360
		48...130	48...130	0	0	**AF38-40-00-12**	**1SBL 297 201 R1200**		0.360
		100...250	100...250	0	0	**AF38-40-00-13**	**1SBL 297 201 R1300**		0.360
		250...500	250...500	0	0	**AF38-40-00-14**	**1SBL 297 201 R1400**		0.400
2 N.O. + 2 N.C. Main Poles									
25	25	24...60	20...60	0	0	**AF09-22-00-11**	**1SBL 137 501 R1100**		0.270
		48...130	48...130	0	0	**AF09-22-00-12**	**1SBL 137 501 R1200**		0.270
		100...250	100...250	0	0	**AF09-22-00-13**	**1SBL 137 501 R1300**		0.270
		250...500	250...500	0	0	**AF09-22-00-14**	**1SBL 137 501 R1400**		0.310
30	30	24...60	20...60	0	0	**AF16-22-00-11**	**1SBL 177 501 R1100**		0.270
		48...130	48...130	0	0	**AF16-22-00-12**	**1SBL 177 501 R1200**		0.270
		100...250	100...250	0	0	**AF16-22-00-13**	**1SBL 177 501 R1300**		0.270
		250...500	250...500	0	0	**AF16-22-00-14**	**1SBL 177 501 R1400**		0.310
45	45	24...60	20...60	0	0	**AF26-22-00-11**	**1SBL 237 501 R1100**		0.360
		48...130	48...130	0	0	**AF26-22-00-12**	**1SBL 237 501 R1200**		0.360
		100...250	100...250	0	0	**AF26-22-00-13**	**1SBL 237 501 R1300**		0.360
		250...500	250...500	0	0	**AF26-22-00-14**	**1SBL 237 501 R1400**		0.400
55	55	24...60	20...60	0	0	**AF38-22-00-11**	**1SBL 297 501 R1100**		0.360
		48...130	48...130	0	0	**AF38-22-00-12**	**1SBL 297 501 R1200**		0.360
		100...250	100...250	0	0	**AF38-22-00-13**	**1SBL 297 501 R1300**		0.360
		250...500	250...500	0	0	**AF38-22-00-14**	**1SBL 297 501 R1400**		0.400

Main Dimensions mm, *inches*

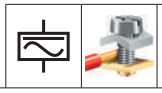
AF09, AF16



AF26, AF38



AF09Z ... AF38Z 4-pole Contactors - Low Consumption
AC / DC Operated - with Screw Terminals



cULus GOST C-Tick CE



AF09Z-40-00



AF26Z-40-00

Application

AF09Z ... AF38Z 4-pole contactors are used for controlling power circuits up to 690 V AC and 440 V DC. They are mainly used for controlling non-inductive or slightly inductive loads (i.e. resistance furnaces...).

Description

– **AF09Z ... AF38Z** contactors include an electronic coil interface accepting a wide control voltage **U_c** min. ... **U_c** max and managing large control voltage variations.
AF..Z contactors cover control voltages between 24...250 V 50/60 Hz or 12...250 V DC
– **AF..Z** contactors allow direct control by PLC-output ≥ 24 V DC 500 mA and obtain a reduced holding coil consumption.
AF..Z contactors withstand short voltage dips and voltage sags (SEMI F47-0706 compliance)
– **AF..Z** contactors have built-in surge protection and do not require additional surge suppressors.

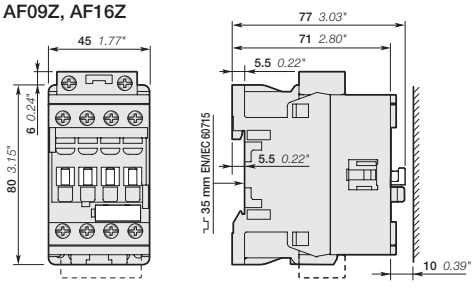
Ordering Details

IEC	UL/CSA	Control voltage		Auxiliary contacts fitted		Type	Order code		Weight
AC-1 Rated current	General use rating	U_c min. ... U_c max.							Pack(ing)
θ ≤ 40 °C	600 V AC								1 piece
A	A	V 50/60 Hz	V DC						kg
4 N.O. Main Poles									
25	25	-	12...20	0	0	AF09Z-40-00-20	1SBL 136 201 R2000		0.310
		24...60	20...60	0	0	AF09Z-40-00-21	1SBL 136 201 R2100		0.310
		48...130	48...130	0	0	AF09Z-40-00-22	1SBL 136 201 R2200		0.310
		100...250	100...250	0	0	AF09Z-40-00-23	1SBL 136 201 R2300		0.310
30	30	-	12...20	0	0	AF16Z-40-00-20	1SBL 176 201 R2000		0.310
		24...60	20...60	0	0	AF16Z-40-00-21	1SBL 176 201 R2100		0.310
		48...130	48...130	0	0	AF16Z-40-00-22	1SBL 176 201 R2200		0.310
		100...250	100...250	0	0	AF16Z-40-00-23	1SBL 176 201 R2300		0.310
45	45	-	12...20	0	0	AF26Z-40-00-20	1SBL 236 201 R2000		0.400
		24...60	20...60	0	0	AF26Z-40-00-21	1SBL 236 201 R2100		0.400
		48...130	48...130	0	0	AF26Z-40-00-22	1SBL 236 201 R2200		0.400
		100...250	100...250	0	0	AF26Z-40-00-23	1SBL 236 201 R2300		0.400
55	55	-	12...20	0	0	AF38Z-40-00-20	1SBL 296 201 R2000		0.400
		24...60	20...60	0	0	AF38Z-40-00-21	1SBL 296 201 R2100		0.400
		48...130	48...130	0	0	AF38Z-40-00-22	1SBL 296 201 R2200		0.400
		100...250	100...250	0	0	AF38Z-40-00-23	1SBL 296 201 R2300		0.400
2 N.O. + 2 N.C. Main Poles									
25	25	-	12...20	0	0	AF09Z-22-00-20	1SBL 136 501 R2000		0.310
		24...60	20...60	0	0	AF09Z-22-00-21	1SBL 136 501 R2100		0.310
		48...130	48...130	0	0	AF09Z-22-00-22	1SBL 136 501 R2200		0.310
		100...250	100...250	0	0	AF09Z-22-00-23	1SBL 136 501 R2300		0.310
30	30	-	12...20	0	0	AF16Z-22-00-20	1SBL 176 501 R2000		0.310
		24...60	20...60	0	0	AF16Z-22-00-21	1SBL 176 501 R2100		0.310
		48...130	48...130	0	0	AF16Z-22-00-22	1SBL 176 501 R2200		0.310
		100...250	100...250	0	0	AF16Z-22-00-23	1SBL 176 501 R2300		0.310
45	45	-	12...20	0	0	AF26Z-22-00-20	1SBL 236 501 R2000		0.400
		24...60	20...60	0	0	AF26Z-22-00-21	1SBL 236 501 R2100		0.400
		48...130	48...130	0	0	AF26Z-22-00-22	1SBL 236 501 R2200		0.400
		100...250	100...250	0	0	AF26Z-22-00-23	1SBL 236 501 R2300		0.400
55	55	-	12...20	0	0	AF38Z-22-00-20	1SBL 296 501 R2000		0.400
		24...60	20...60	0	0	AF38Z-22-00-21	1SBL 296 501 R2100		0.400
		48...130	48...130	0	0	AF38Z-22-00-22	1SBL 296 501 R2200		0.400
		100...250	100...250	0	0	AF38Z-22-00-23	1SBL 296 501 R2300		0.400

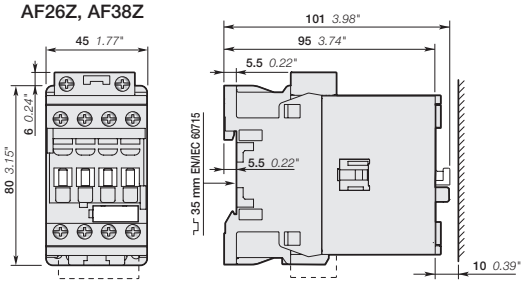
Note: Only AF..Z contactors with DC control voltage 12...20 V DC need to respect the connection polarities indicated close to the coil terminals: A1+ for the positive pole and A2- for the negative pole

Main Dimensions mm, *inches*

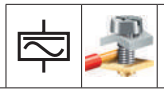
AF09Z, AF16Z



AF26Z, AF38Z



AF09 ... AF38 4-pole Contactors
AC / DC Operated - with Screw Terminals



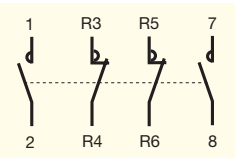
Main Pole - Utilization Characteristics according to IEC

Contactor types		AF09	AF16	AF26	AF38
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1			
Rated operational voltage $U_{e\ max.}$		690 V			
Rated frequency limits		25 ... 400 Hz			
Conventional free-air thermal current I_{th}					
acc. to IEC 60947-4-1, open contactors, $\theta \le 40$ °C		35 A	35 A	55 A	55 A
with conductor cross-sectional area		6 mm²	6 mm²	16 mm²	16 mm²
AC-1 Utilization category					
for air temperature close to contactor					
I_e / AC-1 rated operational current	**$\theta \le 40$ °C**	25 A	30 A	45 A	55 A
U_e max. ≤ 690 V, 50/60 Hz	**$\theta \le 60$ °C**	25 A	30 A	40 A	45 A
	$\theta \le 70$ °C	22 A	26 A	32 A	37 A
with conductor cross-sectional area		4 mm²	6 mm²	10 mm²	16 mm²
Short-circuit protection					
for contactors without thermal O/L relay - Motor protection excluded					
$U_e \le 500$ V AC - gG type fuse		25 A	32 A	50 A	63 A
Rated short-time withstand current I_{cw}	**1 s**	300 A	300 A	450 A	450 A
at 40 °C ambient temperature, in free air from a cold state	**10 s**	150 A	150 A	300 A	300 A
	30 s	80 A	80 A	225 A	225 A
	1 min	60 A	60 A	150 A	150 A
	15 min	35 A	35 A	55 A	55 A
Heat dissipation per pole	**I_e / AC-1**	0.8 W	1.2 W	1.6 W	2.3 W
Max. electrical switching frequency	**AC-1**	600 cycles/h			

Main Pole - Utilization Characteristics according to UL / CSA

Contactor types	AF09	AF16	AF26	AF38
Standards	UL 508, CSA C22.2 N°14			
Rated operational voltage $U_{e\ max.}$	600 V			
UL General use rating				
600 V AC	25 A	30 A	45 A	55 A
With conductor cross-sectional area	AWG 10	AWG 10	AWG 8	AWG 6
80 V DC - 1-pole for 4 N.O. main poles	25 A	30 A	45 A	55 A
With conductor cross-sectional area	AWG 10	AWG 10	AWG 8	AWG 6
80 V DC - 1-pole for 2 N.O. / 2 N.C. main poles	20 A	20 A	45 A	55 A
With conductor cross-sectional area	AWG 12	AWG 12	AWG 8	AWG 6
Max. electrical switching frequency				
for general use	600 cycles/h			

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

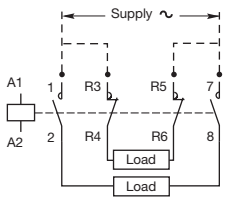


These contactors are suitable for controlling 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit comprising 2 separate loads with a single supply (see diagrams below). When the contactor operates there is no mechanical overlapping between the N.O. poles and the N.C. poles: BREAK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

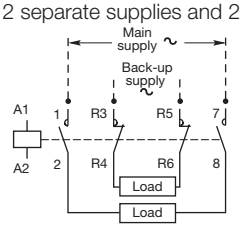
These contactors are not suitable for a reversing starter or for controlling a single load from 2 separate supplies.

Block diagrams

– Single supply and 2 separate loads

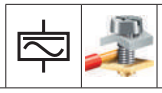


– 2 separate supplies and 2 separate loads

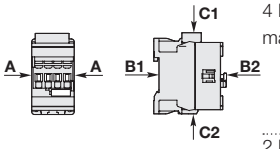


AF09 ... AF38 4-pole Contactors

AC / DC Operated - with Screw Terminals



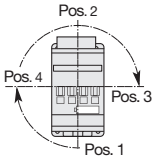
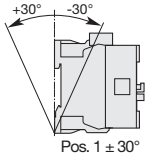
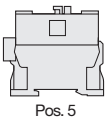
General Technical Data

Contactor types			AF09	AF16	AF26	AF38
Rated insulation voltage U_i						
acc. to IEC 60947-4-1			690 V			
acc. to UL			600 V			
Rated impulse withstand voltage U_{imp}			6 kV			
Electromagnetic compatibility			Devices complying with IEC 60947-1 / EN 60947-1 - Environment A			
Ambient air temperature close to contactor						
Operation in free air			-40 ... +70 °C			
Storage			-60 ... +80 °C			
Climatic withstand			Category B according to IEC 60947-1 Annex Q			
Operating altitude			≤ 3000 m			
Mechanical durability						
Number of operating cycles			10 millions operating cycles			
Max. switching frequency			3600 cycles/h			
Shock withstand acc. IEC 60068-2-27 and EN 60068-2-27						
Mounting position 1	Closed or open position	**Shock direction**	1/2 sinusoidal shock for 11 ms: no change in contact position			
	4 N.O.	**A**	30 g			
	main poles	**B1**	25 g Closed position / 5 g Open position			
		B2	15 g			
		C1	25 g			
		C2	25 g			
	2 N.O. + 2 N.C.	**A**	30 g		30 g Closed position / 25 g Open position	
	main poles	**B1**	25 g Closed position / 5 g Open position		25 g Closed position / 5 g Open position	
		B2	15 g		15 g Closed position / 10 g Open position	
		C1	25 g		25 g Closed position / 20 g Open position	
		C2	25 g		25 g Closed position / 20 g Open position	
Vibration withstand			5 ... 300 Hz			
acc. to IEC 60068-2-6			4 g Closed position / 2 g Open position			

Magnet System Characteristics

Contactor types			AF09	AF16	AF26	AF38
Coil operating limits		**AC supply**	at θ ≤ 60 °C 0.85 x **U_c** min ... 1.1 x **U_c** max at θ ≤ 70 °C 0.85 x **U_c** min ... **U_c** max			
acc. to IEC 60947-4-1		**DC supply**	at θ ≤ 60 °C 0.85 x **U_c** min ... 1.1 x **U_c** max at θ ≤ 70 °C (AF) 0.85 x **U_c** min ... **U_c** max - (AF..Z) 0.85 x **U_c** min ... 1.1 x **U_c** max			
AC control voltage	Rated control circuit voltage **U_c**		24 ... 500 V AC			
50/60 Hz	Coil consumption	**Average pull-in value**	(AF) 50 VA - (AF..Z) 16 VA			
		Average holding value	(AF) 2.2 VA / 2 W - (AF..Z) 1.7 VA / 1.5 W			
DC control voltage	Rated control circuit voltage **U_c**		12 ... 500 V DC			
	Coil consumption	**Average pull-in value**	(AF) 50 W - (AF..Z) 12 ... 16 W			
		Average holding value	(AF) 2 W - (AF..Z) 1.7 W			
PLC-Output control			(AF..Z) ≥ 500 mA 24 V DC			
Drop-out voltage in % of U_c min.			≤ 60 % U_c min			
Voltage sag immunity according to SEMI F47-0706			(AF..Z) conditions of use on request			
Dips withstand (level 0% according to IEC 61000-4-11)			(AF..Z) 22 ms average for **U_c** = 24 ... 250 V 50/60Hz			
-20 °C ≤ θ ≤ +60 °C						
Operating time	between coil energization and:	**N.O. contact closing**	40 ... 95 ms			
		N.C. contact opening	38 ... 90 ms			
	between coil de-energization and:	**N.O. contact opening**	11 ... 95 ms			
		N.C. contact closing	13 ... 98 ms			

Mounting Characteristics

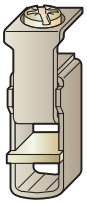
Contactor types	AF09	AF16	AF26	AF38
Mounting positions	  			
	Max. add-on N.C. auxiliary contacts: see accessory fitting details for a 4-pole contactor AF09 ... AF38			
Mounting distances	The contactors can be assembled side by side.			
Fixing				
on rail according to IEC 60715, EN 60715	35 x 7.5 mm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

AF09 ... AF38 4-pole Contactors

AC / DC Operated - with Screw Terminals

up to 55 A

Connecting Characteristics

Contactor types				AF09	AF16	AF26	AF38
Main terminals							
				Screw terminals with cable clamp		Screw terminals with double connector 2 x (5.5 width x 6.8 depth)	
Connecting capacity (min. ... max.)							
Main conductors (poles)							
Rigid		solid (≤ 4 mm²)	**1 x**	1 ... 6 mm²		1.5 ... 16 mm²	
		stranded (≥ 6 mm²)	**2 x**	1 ... 6 mm²		1.5 ... 16 mm²	
Flexible with non insulated ferrule			**1 x**	0.75 ... 6 mm²		1.5 ... 16 mm²	
			2 x	0.75 ... 6 mm²		1.5 ... 16 mm²	
Flexible with insulated ferrule			**1 x**	0.75 ... 4 mm²		1.5 ... 16 mm²	
			2 x	0.75 ... 2.5 mm²		1.5 ... 16 mm²	
Bars or lugs			**L <**	9.6 mm		-	
Capacity according to UL/CSA			**1 or 2 x**	AWG 16 ... 10		AWG 16 ... 6	
Stripping length				10 mm		12 mm	
Auxiliary conductors							
Rigid solid			**1 x**	1 ... 2.5 mm²			
			2 x	1 ... 2.5 mm²			
Flexible with non insulated ferrule			**1 x**	0.75 ... 2.5 mm²			
			2 x	0.75 ... 2.5 mm²			
Flexible with insulated ferrule			**1 x**	0.75 ... 2.5 mm²			
			2 x	0.75 ... 1.5 mm²			
Bars or lugs			**L <**	8 mm			
Capacity according to UL/CSA			**1 or 2 x**	AWG 18 ... 14			
Stripping length				10 mm			
Degree of protection							
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529							
Main terminals				IP20			
Coil terminals				IP20			
Screw terminals				(delivered in open position, screws of unused terminals must be tightened)			
Main terminals				M3.5		M4.5	
Coil terminals				M3.5			
Screwdriver type				Flat Ø 5.5 / Pozidriv 2			
Tightening torque							
Main pole terminals				1.5 Nm / 13 lb.in		2.5 Nm / 22 lb.in	
Coil terminals				1.2 Nm / 11 lb.in			

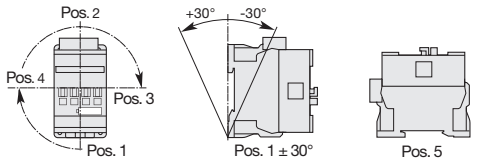
AF09 ... AF38 4-pole Contactors
Main Accessories

Accessory fitting details for a 4-pole contactor AF09 ... AF38

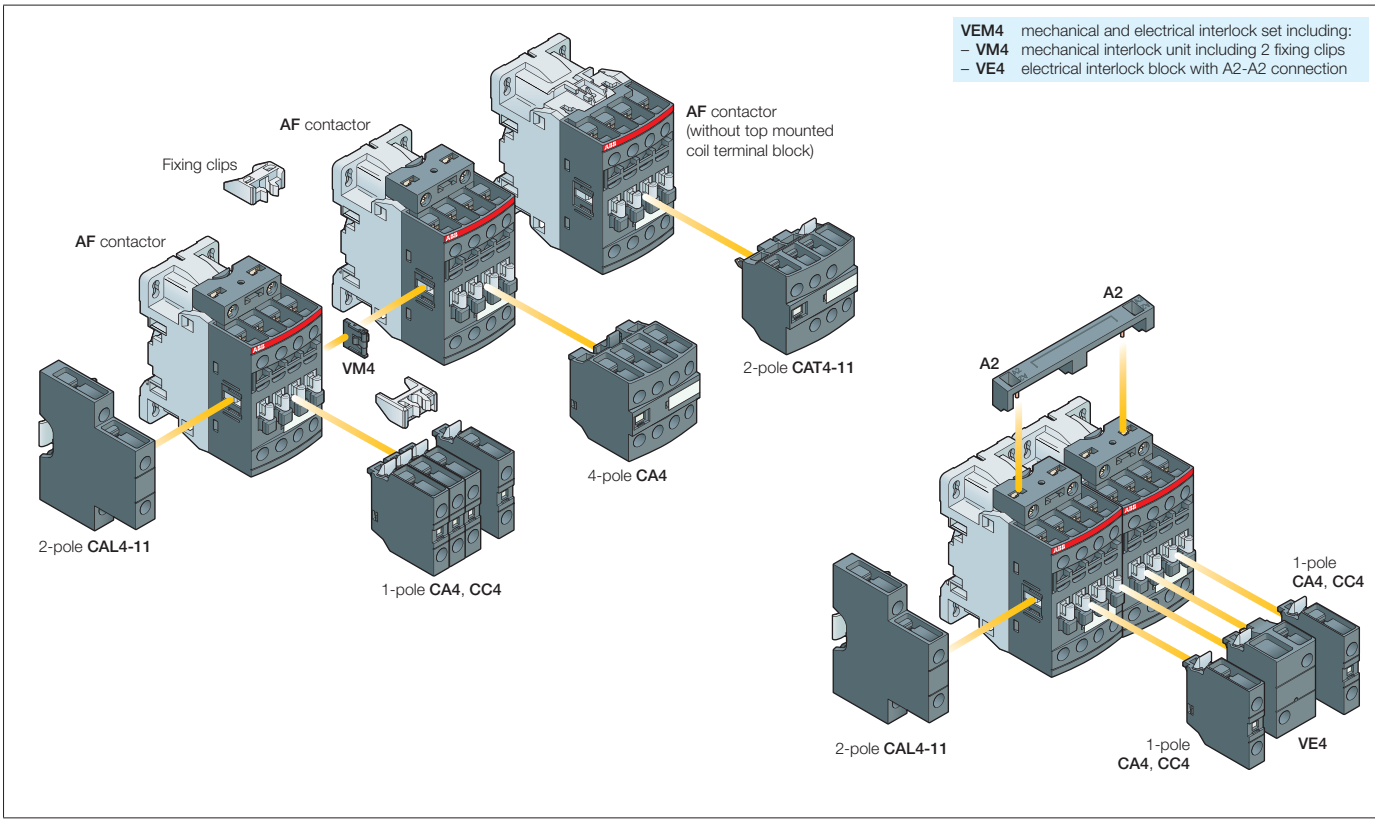
Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

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

Mounting positions



Contactors and main accessories (other accessories available)



Auxiliary Contact Blocks
Accessories for AF09 ... AF38 4-pole Contactors




CA4-10


CA4-22E


CAL4-11


CAT4-11E

Application
The auxiliary contact blocks are used for the operation of auxiliary circuits and control circuits.

Description
Types of auxiliary contact blocks for standard industrial environments:
- **CA4** 1 or 4-pole block, front-mounted, instantaneous with N.O., N.C. contacts
- **CC4** 1-pole block, front-mounted, with N.O. leading contact or N.C. lagging contact
- **CAT4** 2-pole block, front-mounted, instantaneous N.O. + N.C. contacts with A1 / A2 coil terminal connection on front face
- **CAL4** 2-pole block instantaneous N.O. + N.C. contacts clipped onto the right and/or left side of the contactors.

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

Fitting Details - For each contactor, refer to "Accessory Fitting Details" table.

Ordering Details

For contactors	Auxiliary contacts				Type	Order code		Pack[ing] pieces	Weight kg (1 pce)
Front-mounted instantaneous auxiliary contact blocks									
AF09 ... AF38..-40-00	1	0	-	-	**CA4-10**	**1SBN 010 110 R1010**		1	0.014
AF09 ... AF38..-22-00	1	0	-	-	**CA4-10-T**	**1SBN 010 110 T1010**		10	0.014
	0	1	-	-	**CA4-01**	**1SBN 010 110 R1001**		1	0.014
	0	1	-	-	**CA4-01-T**	**1SBN 010 110 T1001**		10	0.014
	2	2	-	-	**CA4-22E**	**1SBN 010 140 R1022**		1	0.055
	3	1	-	-	**CA4-31E**	**1SBN 010 140 R1031**		1	0.055
	4	0	-	-	**CA4-40E**	**1SBN 010 140 R1040**		1	0.055
AF09 ... AF38..-40-00	0	4	-	-	**CA4-04E**	**1SBN 010 140 R1004**		1	0.055
Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact									
AF09 ... AF38..-40-00	-	-	1	0	**CC4-10**	**1SBN 010 111 R1010**		1	0.014
AF09 ... AF38..-22-00	-	-	0	1	**CC4-01**	**1SBN 010 111 R1001**		1	0.014
Side-mounted instantaneous auxiliary contact blocks									
AF09 ... AF38..-40-00	1	1	-	-	**CAL4-11**	**1SBN 010 120 R1011**		1	0.040
AF09 ... AF38..-22-00	1	1	-	-	**CAL4-11-T**	**1SBN 010 120 T1011**		10	0.040
Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks									
AF09 ... AF38..-40-00 AF09 ... AF38..-22-00	1	1	-	-	**CAT4-11E**	**1SBN 010 151 R1011**		1	0.040

Note: CAT4 not fittable on AF..Z contactors with DC control voltage 12...20VDC.

Auxiliary Contact Blocks
Accessories for AF09 ... AF38 4-pole Contactors



Technical Data

Types			1-pole CA4, 1-pole CC4, 4-pole CA4, 2-pole CAT4, 2-pole CAL4

Contact Utilization Characteristics according to IEC

Standards			IEC 60947-5-1 and EN 60947-5-1
Rated insulation voltage U_i acc. to IEC 60947-5-1			690 V
Rated impulse withstand voltage U_{imp}			6 kV
Rated operational voltage U_e max.			24 ... 690 V
Conventional thermal current I_{th} - $\theta \leq 40$ °C			16 A
Rated frequency limits			25 ... 400 Hz
Rated operational current I_e / AC-15		**24-127 V 50/60 Hz**	6 A
acc. to IEC 60947-5-1		**220-240 V 50/60 Hz**	4 A
		400-440 V 50/60 Hz	3 A
		500 V 50/60 Hz	2 A
		690 V 50/60 Hz	2 A
Making capacity acc. to IEC 60947-5-1			10 x I_e AC-15 acc. to IEC 60947-5-1
Breaking capacity acc. to IEC 60947-5-1			10 x I_e AC-15 acc. to IEC 60947-5-1
Rated operational current I_e / DC-13		**24 V DC**	6 A / 144 W
acc. to IEC 60947-5-1		**48 V DC**	2.8 A / 134 W
		72 V DC	1 A / 72 W
		110 V DC	0.55 A / 60 W
		125 V DC	0.55 A / 69 W
		220 V DC	0.27 A / 60 W
		250 V DC	0.27 A / 68 W
		400 V DC	0.15 A / 60 W
		500 V DC	0.13 A / 65 W
		600 V DC	0.1 A / 60 W
Short-circuit protection gG type fuse			10 A
Rated short-time withstand current I_{cw}		**for 1.0 s**	100 A
θ = 40 °C		**for 0.1 s**	140 A
Minimum switching capacity			12 V / 3 mA
with failure rate acc. to IEC 60947-5-4			10^{-7}
Heat dissipation per pole at 6 A			0.1 W
Mechanical durability	Number of operating cycles		10 millions operating cycles
	Max. switching frequency		3600 cycles/h
Max. electrical switching frequency		**for AC-15**	1200 cycles/h
		for DC-13	900 cycles/h

Contact Utilization Characteristics according to UL / CSA

Standards	UL 508, CSA C22.2 N°14
Rated insulation voltage U_i	600 V
Max. rated voltage	600 V AC, 600 V DC
Pilot duty	A600, Q600
AC thermal rated current	10 A
AC maximum volt-ampere making	7200 VA
AC maximum volt-ampere breaking	720 VA
DC thermal rated current	2.5 A
DC maximum volt-ampere making-breaking	69 VA

Connecting Characteristics

Screw terminals			(delivered in open position, screws of unused terminals must be tightened)
All terminals			M3.5
Connecting capacity (min. ... max.)			
	Rigid solid	**1 x**	1 ... 2.5 mm²
		2 x	1 ... 2.5 mm²
	Flexible with non insulated ferrule	**1 x**	0.75 ... 2.5 mm²
		2 x	0.75 ... 2.5 mm²
	Flexible with insulated ferrule	**1 x**	0.75 ... 2.5 mm²
		2 x	0.75 ... 1.5 mm²
	Bars or lugs	**L <**	8 mm
Capacity acc. to UL/CSA		**1 or 2 x**	AWG 18 ... 14
Stripping length			10 mm
Degree of protection			
acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529			IP20
Screwdriver type			Flat Ø 5.5 / Pozidriv 2
Tightening torque			1.2 Nm / 11 lb.in


VM4

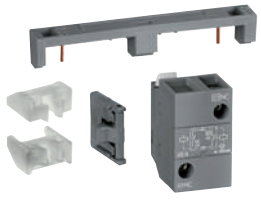
Mechanical interlock unit

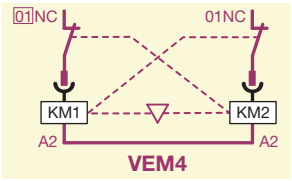
Description

VM4 mechanical interlock unit for the interlocking of two AF contactors.
When mounted between two contactors without additional width, the VM4 mechanical interlock unit prevents one of the contactors from closing as long as the other contactor is closed.
The mechanical interlock unit includes 2 fixing clips (BB4).

Ordering Details

For contactors	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
AF09 ... AF38..-40-00	**VM4**	**1SBN 030 105 T1000**		10	0.005


VEM4



Mechanical and electrical interlock set

Description

VEM4 mechanical and electrical interlock set for the interlocking of two AF contactors.
VEM4 set includes a mechanical interlock unit VM4 with 2 fixing clips (BB4) and a VE4 electrical interlock block with A2-A2 connection.
Fixing the electrical interlock block to the contactor front face connects the 2 built-in N.C. interlocking contacts with the two coils. VE4 block must be used with A2-A2 connection to respect the electrical connection diagram.

Ordering Details

For contactors	Auxiliary contacts	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
AF09, AF16..-40-00 AF26, AF38..-40-00	1 1	**VEM4**	**1SBN 030 111 R1000**		1	0.035

Note: VEM4 not fittable on AF..Z contactors with DC control voltage 12...20 V DC.


BB4

Fixing clips

Ordering Details

For contactors	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
AF09 ... AF38..-40-00	**BB4**	**1SBN 110 120 W1000**		50	0.002



Technical Data

Interlock types	VM4
Mechanical durability	
Number of operating cycles	5 millions operating cycles
Max. switching frequency	1800 cycles/h

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

Contact Utilization Characteristics according to UL / CSA

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

Connecting Characteristics

Screw terminals		
All terminals		M3.5
Connecting capacity (min. ... max.)		
Rigid Solid	**1 x**	1 ... 2.5 mm²
	2 x	1 ... 2.5 mm²
Flexible with non insulated ferrule	**1 x**	0.75 ... 2.5 mm²
	2 x	0.75 ... 2.5 mm²
Flexible with insulated ferrule	**1 x**	0.75 ... 2.5 mm²
	2 x	0.75 ... 1.5 mm²
Bars or lugs	**L <**	8 mm
Capacity according to UL/CSA	**1 or 2 x**	AWG 18 ... 14
Stripping length		10 mm
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529		IP20
Screwdriver type		Flat Ø 5.5 / Pozidriv 2
Tightening torque		1.2 Nm / 11 lb.in




LDC4

Additional coil terminal block

Description

Additional coil terminal block for a bottom access to the coil terminals of contactors or contactor relays.

Ordering Details

For contactors	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
AF09 ... AF38	**LDC4**	**1SBN 070 156 T1000**		10	0.010


BX4


BX4-CA

Protective covers

Description

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

Ordering Details

For contactors	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
All 1-stack contactors	**BX4**	**1SBN 110 108 T1000**		10	0.006
For 4-pole CA4 and 2-pole CAT4 auxiliary contact blocks	**BX4-CA**	**1SBN 110 109 W1000**		50	0.001


BA4

Function markers

Description

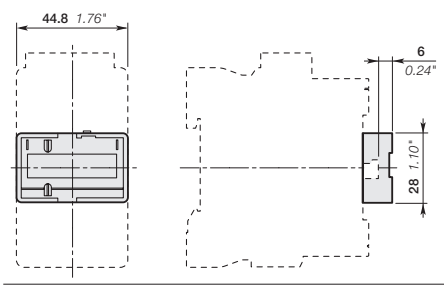
Box of 16 blank cards (16 markers by card) printable on HTP500 thermal transfer printer and AMS 500 marking table to identify your contactors, overload relays or manual motor starters.
Marker dimensions: 7 x 20 mm *(.276" x .787")*

Ordering Details

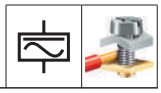
For contactors	Type	Order code		Pack(ing) pieces	Weight kg (1 pce)
Marker card	**BA4**	**1SNA 235 156 R2700**		16	0.011
AMS 500 support plate for 8 BA4	**SPRC 1**	**1SNA 360 010 R1500**		1	0.290
HTP500 support plate	**HTP500-BA4**	**1SNA 235 712 R2400**		1	0.220

Main Dimensions mm, *inches*

BX4



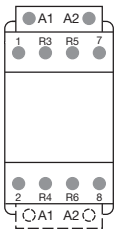
AF09 ... AF38 4-pole Contactors
Terminal Marking and Positioning



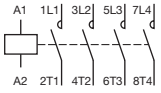
Standard devices without addition of auxiliary contacts



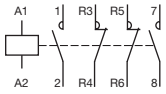
AF09 ... AF38..-40-00



AF09 ... AF38..-22-00

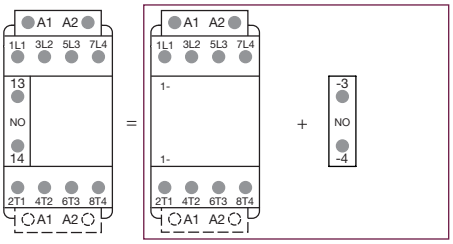


AF09 ... AF38..-40-00

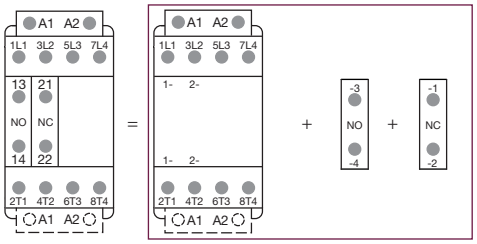


AF09 ... AF38..-22-00

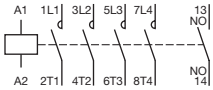
Other possible contact combinations with auxiliary contacts added by the user



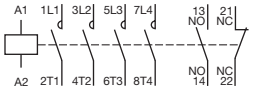
Combination 10 = AF09 ... AF38..-40-00 + CA4-10



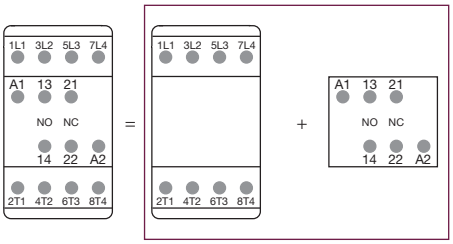
Combination 11 = AF09 ... AF38..-40-00+ CA4-10 + CA4-01



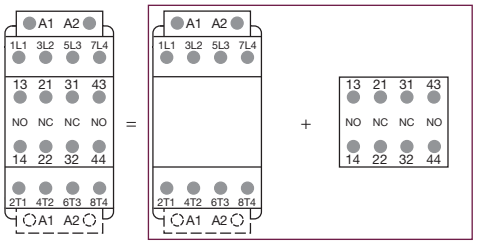
Combination 10



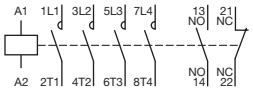
Combination 11



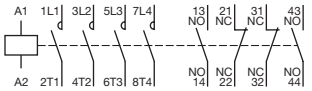
Combination 11 = AF09 ... AF38..-40-00 + CAT4-11E



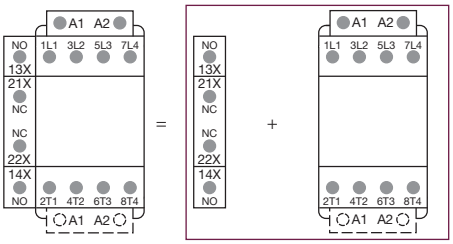
Combination 22 = AF09 ... AF38..-40-00 + CA4-22E



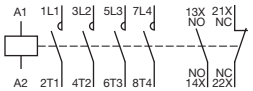
Combination 11



Combination 22



Combination 11 = CAL4-11 + AF09 ... AF38..-40-00



Combination 11

Note: Only AF..Z contactor 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

Add-on Auxiliary Contacts
Terminal Marking and Positioning

1-pole auxiliary contacts



CA4-01



CA4-10

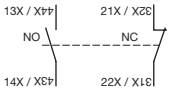


CC4-01

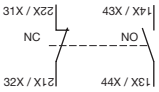


CC4-10

2-pole auxiliary contacts



CAL4-11
(Left side-mounted)

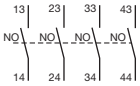


CAL4-11
(Right side-mounted)

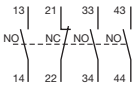


CAT4-11E

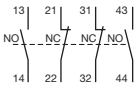
4-pole auxiliary contacts



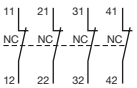
CA4-40E



CA4-31E



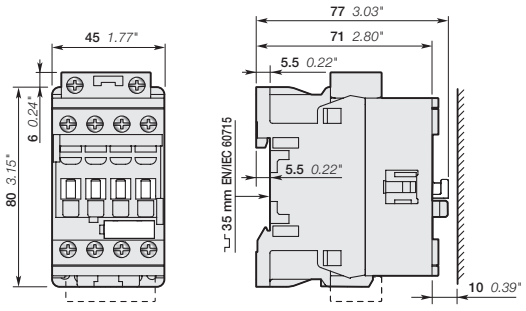
CA4-22E



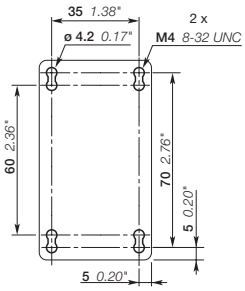
CA4-04E

AF09, AF16 4-pole Contactors
AC / DC Operated - with Screw Terminals

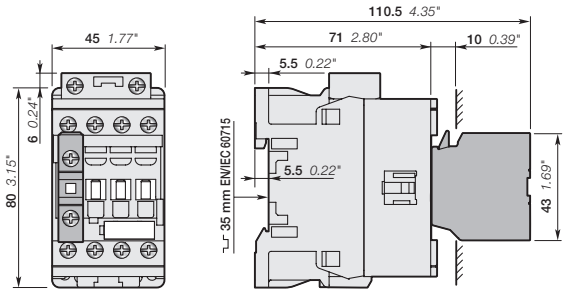
Dimensions mm, *inches*



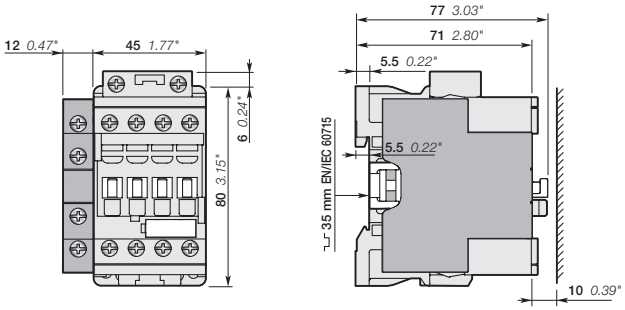
AF09, AF16



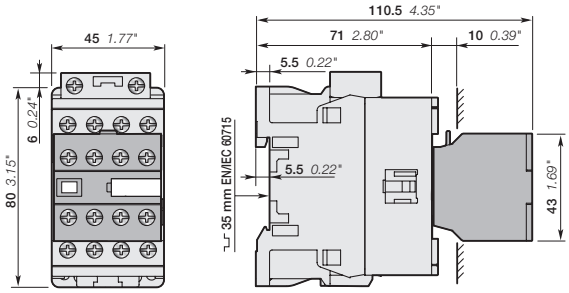
AF09, AF16



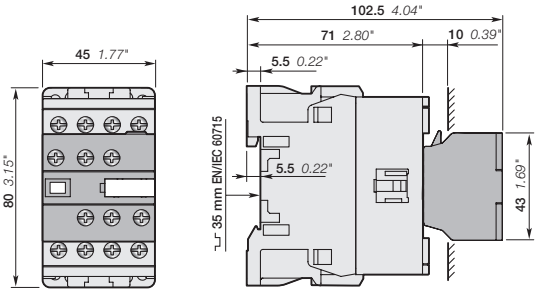
AF09, AF16
+ **CA4, CC4** 1-pole auxiliary contact block



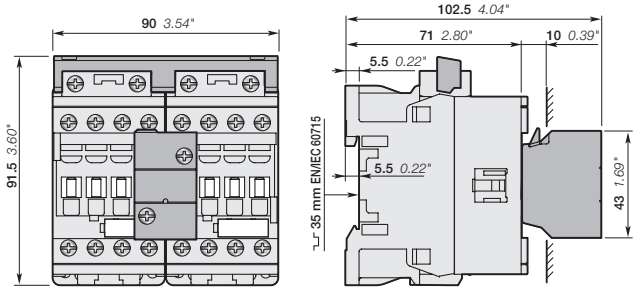
AF09, AF16
+ **CAL4-11** 2-pole auxiliary contact block



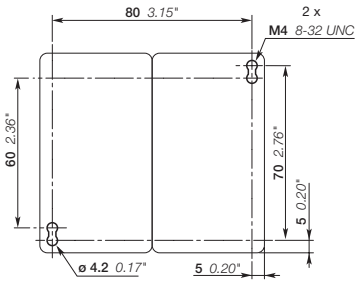
AF09, AF16
+ **CA4** 4-pole auxiliary contact block



AF09, AF16
+ **CAT4** 2-pole auxiliary contact and coil terminal block



AF09..-40-00, AF16..-40-00
+ **VEM4** mechanical and electrical interlock set

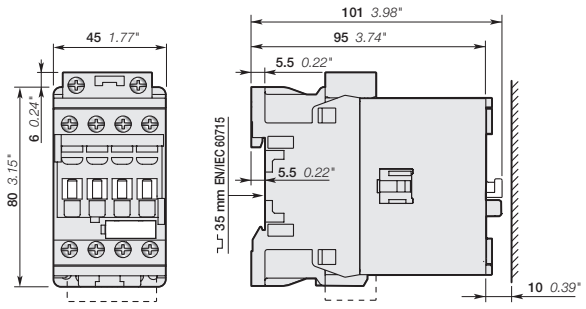


AF09..-40-00, AF16..-40-00
+ **VEM4** mechanical and electrical interlock set

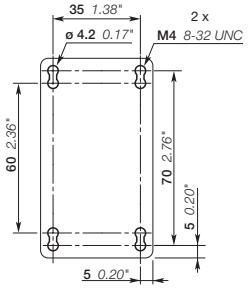
Note: contactor lateral distance to grounded component 2 mm *0.08*" min.

AF26, AF38 4-pole Contactors
AC / DC Operated - with Screw Terminals

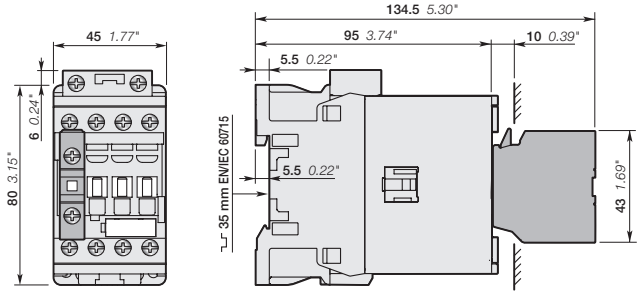
Dimensions mm, *inches*



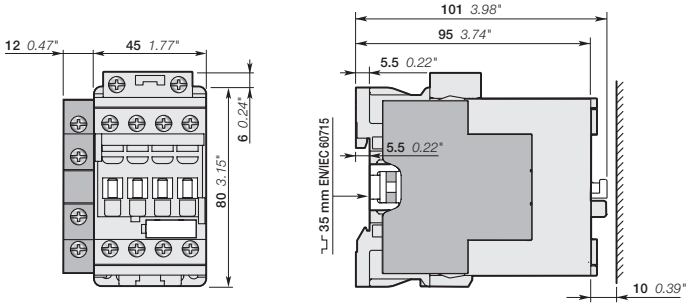
AF26, AF38



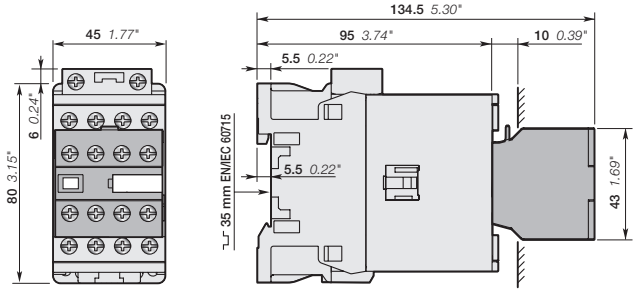
AF26, AF38



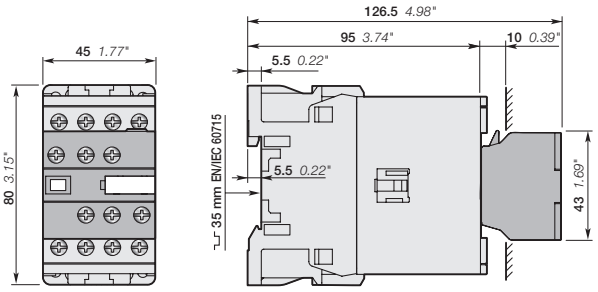
AF26, AF38
+ **CA4, CC4** 1-pole auxiliary contact block



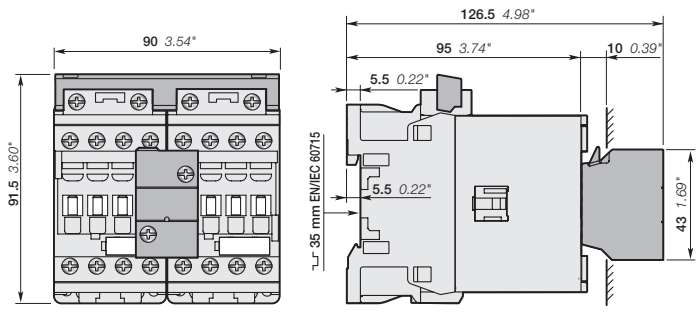
AF26, AF38
+ **CAL4-11** 2-pole auxiliary contact block



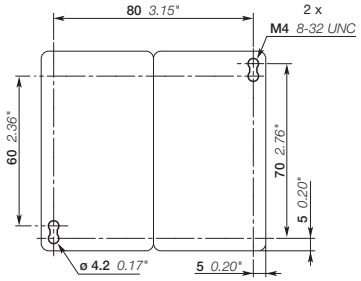
AF26, AF38
+ **CA4** 4-pole auxiliary contact block



AF26, AF38
+ **CAT4** 2-pole auxiliary contact and coil terminal block



AF26..-40-00, AF38..-40-00
+ **VEM4** mechanical and electrical interlock set



AF26..-40-00, AF38..-40-00
+ **VEM4** mechanical and electrical interlock set

Note: contactor lateral distance to grounded component 2 mm *0.08"* min.

Index

Order Code Classification

Order code	Type	Page
1SBL 136 201 R2000	AF09Z-40-00-20	6
1SBL 136 201 R2100	AF09Z-40-00-21	6
1SBL 136 201 R2200	AF09Z-40-00-22	6
1SBL 136 201 R2300	AF09Z-40-00-23	6
1SBL 136 501 R2000	AF09Z-22-00-20	6
1SBL 136 501 R2100	AF09Z-22-00-21	6
1SBL 136 501 R2200	AF09Z-22-00-22	6
1SBL 136 501 R2300	AF09Z-22-00-23	6
1SBL 137 201 R1100	AF09-40-00-11	5
1SBL 137 201 R1200	AF09-40-00-12	5
1SBL 137 201 R1300	AF09-40-00-13	5
1SBL 137 201 R1400	AF09-40-00-14	5
1SBL 137 501 R1100	AF09-22-00-11	5
1SBL 137 501 R1200	AF09-22-00-12	5
1SBL 137 501 R1300	AF09-22-00-13	5
1SBL 137 501 R1400	AF09-22-00-14	5
1SBL 176 201 R2000	AF16Z-40-00-20	6
1SBL 176 201 R2100	AF16Z-40-00-21	6
1SBL 176 201 R2200	AF16Z-40-00-22	6
1SBL 176 201 R2300	AF16Z-40-00-23	6
1SBL 176 501 R2000	AF16Z-22-00-20	6
1SBL 176 501 R2100	AF16Z-22-00-21	6
1SBL 176 501 R2200	AF16Z-22-00-22	6
1SBL 176 501 R2300	AF16Z-22-00-23	6
1SBL 177 201 R1100	AF16-40-00-11	5
1SBL 177 201 R1200	AF16-40-00-12	5
1SBL 177 201 R1300	AF16-40-00-13	5
1SBL 177 201 R1400	AF16-40-00-14	5
1SBL 177 501 R1100	AF16-22-00-11	5
1SBL 177 501 R1200	AF16-22-00-12	5
1SBL 177 501 R1300	AF16-22-00-13	5
1SBL 177 501 R1400	AF16-22-00-14	5
1SBL 236 201 R2000	AF26Z-40-00-20	6
1SBL 236 201 R2100	AF26Z-40-00-21	6
1SBL 236 201 R2200	AF26Z-40-00-22	6
1SBL 236 201 R2300	AF26Z-40-00-23	6
1SBL 236 501 R2000	AF26Z-22-00-20	6
1SBL 236 501 R2100	AF26Z-22-00-21	6
1SBL 236 501 R2200	AF26Z-22-00-22	6
1SBL 236 501 R2300	AF26Z-22-00-23	6
1SBL 237 201 R1100	AF26-40-00-11	5
1SBL 237 201 R1200	AF26-40-00-12	5
1SBL 237 201 R1300	AF26-40-00-13	5
1SBL 237 201 R1400	AF26-40-00-14	5
1SBL 237 501 R1100	AF26-22-00-11	5
1SBL 237 501 R1200	AF26-22-00-12	5
1SBL 237 501 R1300	AF26-22-00-13	5
1SBL 237 501 R1400	AF26-22-00-14	5
1SBL 296 201 R2000	AF38Z-40-00-20	6
1SBL 296 201 R2100	AF38Z-40-00-21	6
1SBL 296 201 R2200	AF38Z-40-00-22	6
1SBL 296 201 R2300	AF38Z-40-00-23	6
1SBL 296 501 R2000	AF38Z-22-00-20	6
1SBL 296 501 R2100	AF38Z-22-00-21	6
1SBL 296 501 R2200	AF38Z-22-00-22	6
1SBL 296 501 R2300	AF38Z-22-00-23	6
1SBL 297 201 R1100	AF38-40-00-11	5
1SBL 297 201 R1200	AF38-40-00-12	5
1SBL 297 201 R1300	AF38-40-00-13	5
1SBL 297 201 R1400	AF38-40-00-14	5
1SBL 297 501 R1100	AF38-22-00-11	5
1SBL 297 501 R1200	AF38-22-00-12	5
1SBL 297 501 R1300	AF38-22-00-13	5
1SBL 297 501 R1400	AF38-22-00-14	5
1SBN 010 110 R1001	CA4-01	10
1SBN 010 110 R1010	CA4-10	10

Order code	Type	Page
1SBN 010 110 T1001	CA4-01-T	10
1SBN 010 110 T1010	CA4-10-T	10
1SBN 010 111 R1001	CC4-01	10
1SBN 010 111 R1010	CC4-10	10
1SBN 010 120 R1011	CAL4-11	10
1SBN 010 120 T1011	CAL4-11-T	10
1SBN 010 140 R1004	CA4-04E	10
1SBN 010 140 R1022	CA4-22E	10
1SBN 010 140 R1031	CA4-31E	10
1SBN 010 140 R1040	CA4-40E	10
1SBN 010 151 R1011	CAT4-11E	10
1SBN 030 105 T1000	VM4	12
1SBN 030 111 R1000	VEM4	12
1SBN 070 156 T1000	LDC4	14
1SBN 110 108 T1000	BX4	14
1SBN 110 109 W1000	BX4-CA	14
1SBN 110 120 W1000	BB4	12
1SNA 235 156 R2700	BA4	14
1SNA 235 712 R2400	HTP500-BA4	14
1SNA 360 010 R1500	SPRC 1	14

Order code	Type	Page

Order code	Type	Page

Index

Type Classification

Type	Order code	Page
AF09-22-00-11	1SBL 137 501 R1100	**5**
AF09-22-00-12	1SBL 137 501 R1200	**5**
AF09-22-00-13	1SBL 137 501 R1300	**5**
AF09-22-00-14	1SBL 137 501 R1400	**5**
AF09-40-00-11	1SBL 137 201 R1100	**5**
AF09-40-00-12	1SBL 137 201 R1200	**5**
AF09-40-00-13	1SBL 137 201 R1300	**5**
AF09-40-00-14	1SBL 137 201 R1400	**5**
AF09Z-22-00-20	1SBL 136 501 R2000	**6**
AF09Z-22-00-21	1SBL 136 501 R2100	**6**
AF09Z-22-00-22	1SBL 136 501 R2200	**6**
AF09Z-22-00-23	1SBL 136 501 R2300	**6**
AF09Z-40-00-20	1SBL 136 201 R2000	**6**
AF09Z-40-00-21	1SBL 136 201 R2100	**6**
AF09Z-40-00-22	1SBL 136 201 R2200	**6**
AF09Z-40-00-23	1SBL 136 201 R2300	**6**
AF16-22-00-11	1SBL 177 501 R1100	**5**
AF16-22-00-12	1SBL 177 501 R1200	**5**
AF16-22-00-13	1SBL 177 501 R1300	**5**
AF16-22-00-14	1SBL 177 501 R1400	**5**
AF16-40-00-11	1SBL 177 201 R1100	**5**
AF16-40-00-12	1SBL 177 201 R1200	**5**
AF16-40-00-13	1SBL 177 201 R1300	**5**
AF16-40-00-14	1SBL 177 201 R1400	**5**
AF16Z-22-00-20	1SBL 176 501 R2000	**6**
AF16Z-22-00-21	1SBL 176 501 R2100	**6**
AF16Z-22-00-22	1SBL 176 501 R2200	**6**
AF16Z-22-00-23	1SBL 176 501 R2300	**6**
AF16Z-40-00-20	1SBL 176 201 R2000	**6**
AF16Z-40-00-21	1SBL 176 201 R2100	**6**
AF16Z-40-00-22	1SBL 176 201 R2200	**6**
AF16Z-40-00-23	1SBL 176 201 R2300	**6**
AF26-22-00-11	1SBL 237 501 R1100	**5**
AF26-22-00-12	1SBL 237 501 R1200	**5**
AF26-22-00-13	1SBL 237 501 R1300	**5**
AF26-22-00-14	1SBL 237 501 R1400	**5**
AF26-40-00-11	1SBL 237 201 R1100	**5**
AF26-40-00-12	1SBL 237 201 R1200	**5**
AF26-40-00-13	1SBL 237 201 R1300	**5**
AF26-40-00-14	1SBL 237 201 R1400	**5**
AF26Z-22-00-20	1SBL 236 501 R2000	**6**
AF26Z-22-00-21	1SBL 236 501 R2100	**6**
AF26Z-22-00-22	1SBL 236 501 R2200	**6**
AF26Z-22-00-23	1SBL 236 501 R2300	**6**
AF26Z-40-00-20	1SBL 236 201 R2000	**6**
AF26Z-40-00-21	1SBL 236 201 R2100	**6**
AF26Z-40-00-22	1SBL 236 201 R2200	**6**
AF26Z-40-00-23	1SBL 236 201 R2300	**6**
AF38-22-00-11	1SBL 297 501 R1100	**5**
AF38-22-00-12	1SBL 297 501 R1200	**5**
AF38-22-00-13	1SBL 297 501 R1300	**5**
AF38-22-00-14	1SBL 297 501 R1400	**5**
AF38-40-00-11	1SBL 297 201 R1100	**5**
AF38-40-00-12	1SBL 297 201 R1200	**5**
AF38-40-00-13	1SBL 297 201 R1300	**5**
AF38-40-00-14	1SBL 297 201 R1400	**5**
AF38Z-22-00-20	1SBL 296 501 R2000	**6**
AF38Z-22-00-21	1SBL 296 501 R2100	**6**
AF38Z-22-00-22	1SBL 296 501 R2200	**6**
AF38Z-22-00-23	1SBL 296 501 R2300	**6**
AF38Z-40-00-20	1SBL 296 201 R2000	**6**
AF38Z-40-00-21	1SBL 296 201 R2100	**6**
AF38Z-40-00-22	1SBL 296 201 R2200	**6**
AF38Z-40-00-23	1SBL 296 201 R2300	**6**
BA4	1SNA 235 156 R2700	**14**
BB4	1SBN 110 120 W1000	**12**

Type	Order code	Page
BX4	1SBN 110 108 T1000	**14**
BX4-CA	1SBN 110 109 W1000	**14**
CA4-01	1SBN 010 110 R1001	**10**
CA4-01-T	1SBN 010 110 T1001	**10**
CA4-04E	1SBN 010 140 R1004	**10**
CA4-10	1SBN 010 110 R1010	**10**
CA4-10-T	1SBN 010 110 T1010	**10**
CA4-22E	1SBN 010 140 R1022	**10**
CA4-31E	1SBN 010 140 R1031	**10**
CA4-40E	1SBN 010 140 R1040	**10**
CAL4-11	1SBN 010 120 R1011	**10**
CAL4-11-T	1SBN 010 120 T1011	**10**
CAT4-11E	1SBN 010 151 R1011	**10**
CC4-01	1SBN 010 111 R1001	**10**
CC4-10	1SBN 010 111 R1010	**10**
HTP500-BA4	1SNA 235 712 R2400	**14**
LDC4	1SBN 070 156 T1000	**14**
SPRC 1	1SNA 360 010 R1500	**14**
VEM4	1SBN 030 111 R1000	**12**
VM4	1SBN 030 105 T1000	**12**

Type	Order code	Page

Type	Order code	Page

Contact us

ABB France
Low Voltage Products Division
10, rue Ampère Z.I. - B.P. 114
F-69685 Chassieu cedex / France

ABB STOTZ-KONTAKT GmbH
Eppelheimer Straße 82
D-69123 Heidelberg / Germany

ABB AB/ Cewe-Control
Motorgränd 20
S-721 61 Västerås / Sweden

You can find the address of your local sales organisation on the ABB home page
http://www.abb.com/contacts -> Low Voltage products

Note
We reserve the right to make technical changes or modify the contents of this document without prior notice. With regard to purchase orders, the agreed particulars shall prevail. ABB does not accept any responsibility whatsoever for potential errors or possible lack of information in this document.

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

Copyright© 2010 ABB
All rights reserved

DOC 1SBC100156C0203 - Printed in France (PDF 12.2010)

Power and productivity
for a better world™