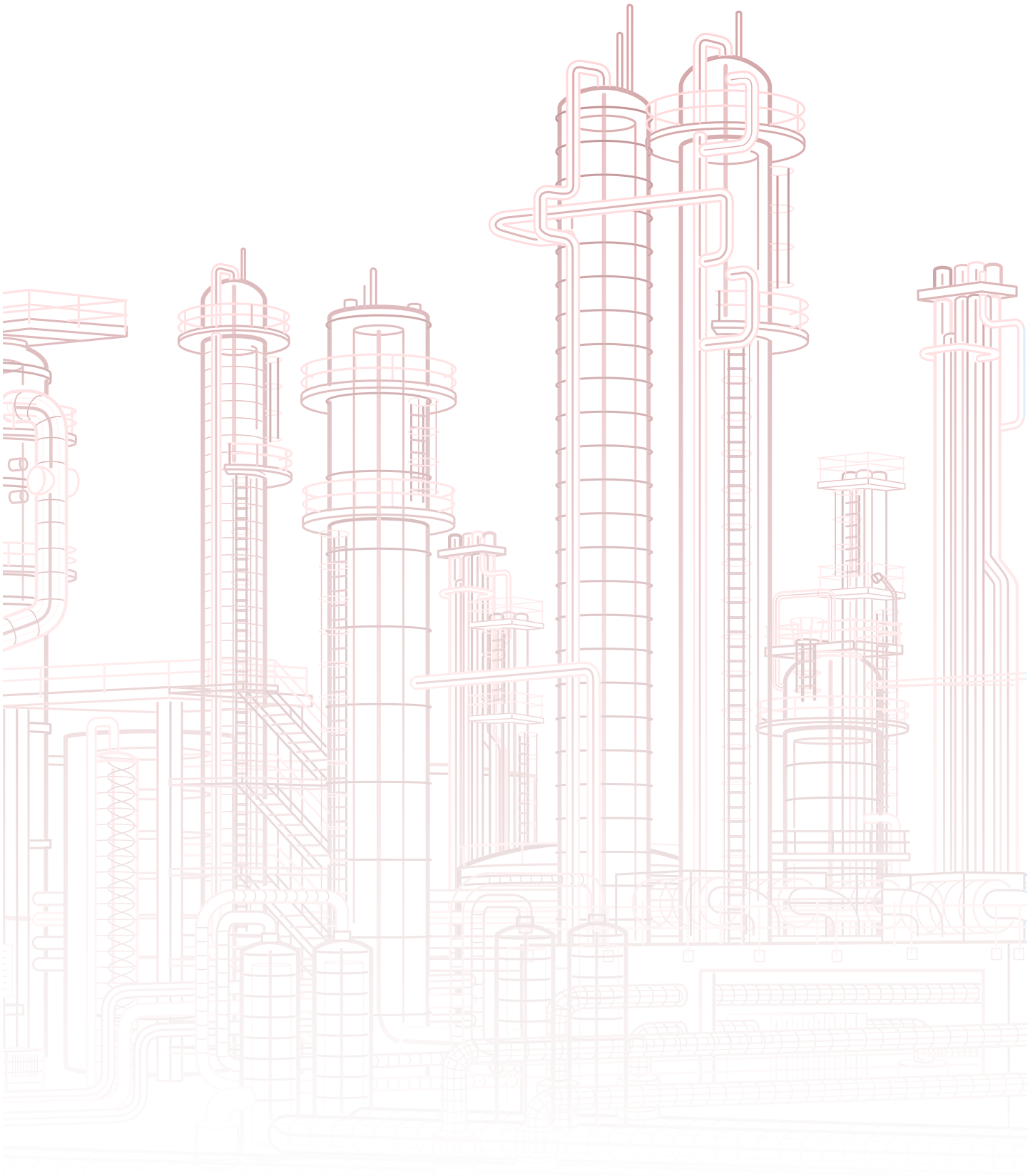

AF09, AF16 4-pole Contactors up to 30 A AC-1



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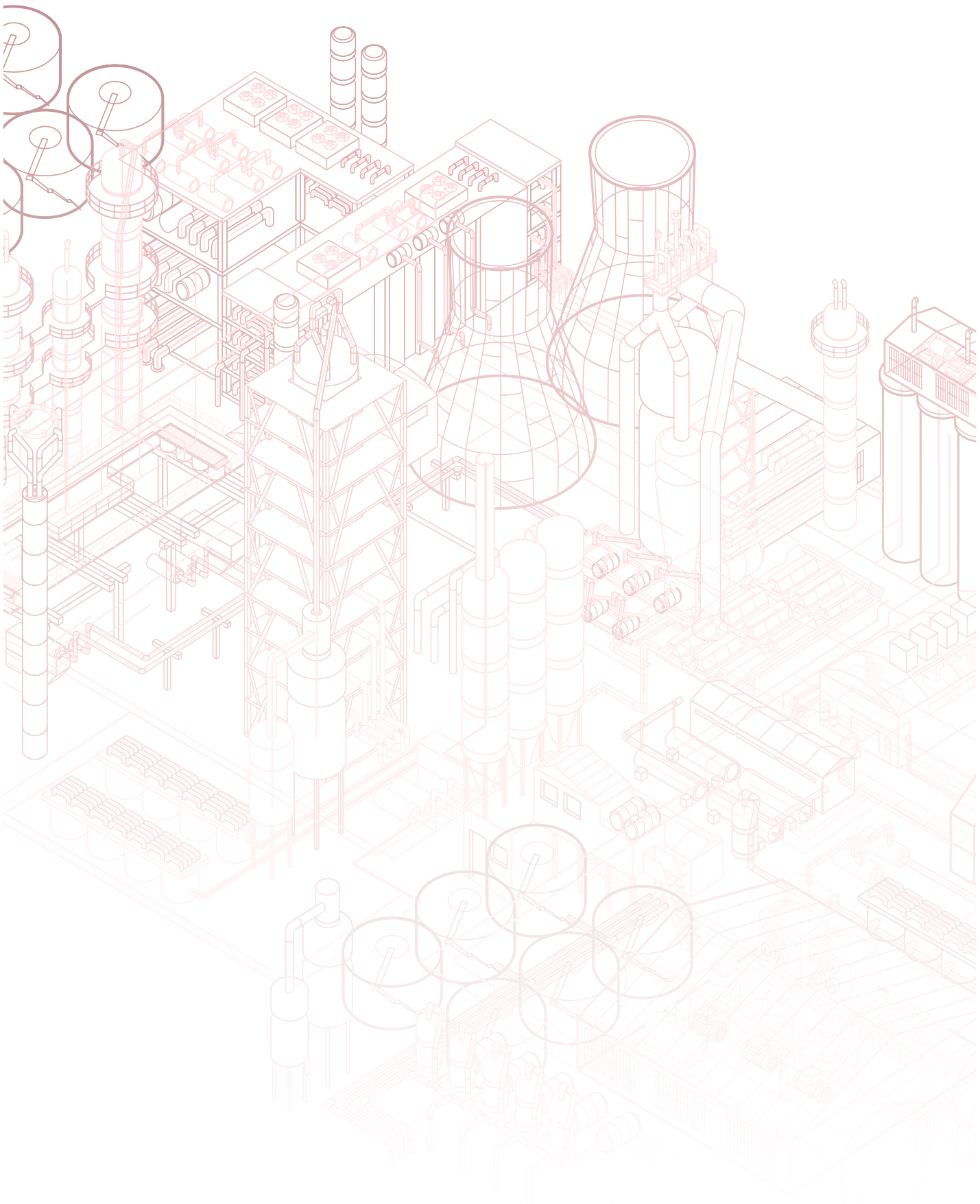
1SBC 101 173 S0201



1SBC 101 134 S0201

4-pole Contactors



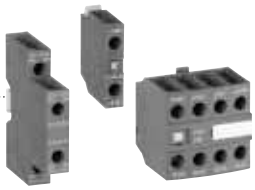
AC / DC control voltage

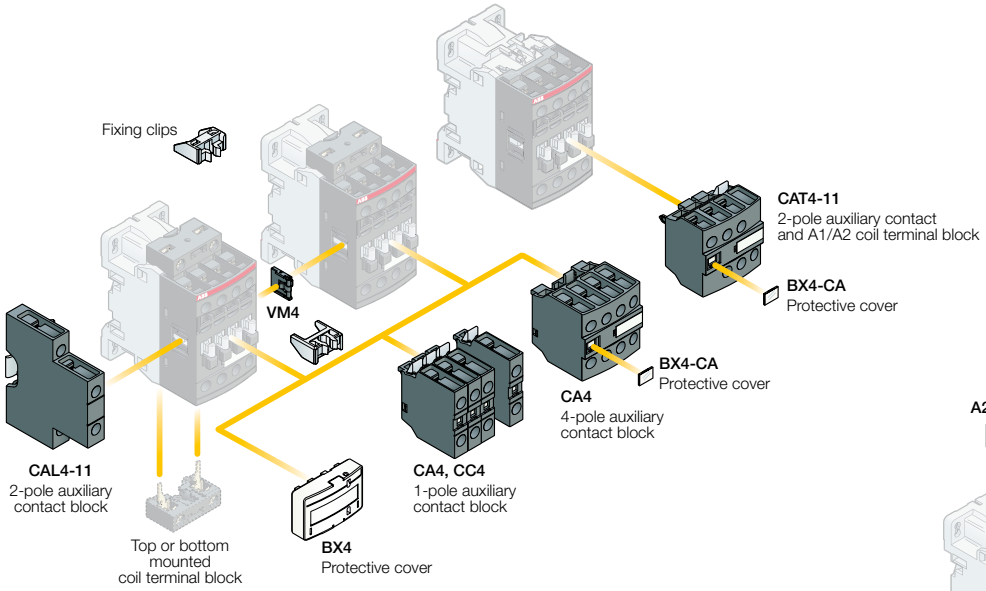
AF09	AF16
AF09-40-00	**AF16-40-00**
AF09-22-00	**AF16-22-00**

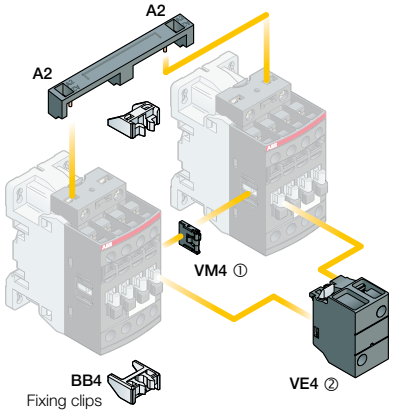
Switching of Resistive Circuits

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

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

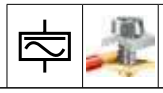




VEM4 mechanical and electrical interlock set including:
① **VM4** mechanical interlock unit including 2 fixing clips (BB4)
② **VE4** electrical interlock block with A2-A2 connection

1SBC 101 130 S2201

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



25 to 30 A

cULus CE



AF09-40-00



AF09-22-00

Application

AF09 and **AF16** 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** and **AF16** 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 (i.e. 100...250 V 50/60 Hz - DC) can be used for different control voltages used worldwide without any coil change
- **AF**..**Z** contactors equipped with a **Z** coil type allow direct control by 24 V DC 500 mA PLC-output and obtain a reduced holding coil consumption. **AF**..**Z** contactors withstand short dips and voltage interruptions (SEMI F47-0706 compliance)
- **AF** 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	24...60	20...60	0	0	**AF09Z-40-00-21**	**1SBL 136 201 R2100**		0.310
		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	**AF16Z-40-00-21**	**1SBL 176 201 R2100**		0.310
		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
2 N.O. + 2 N.C. Main Poles									
25	25	24...60	20...60	0	0	**AF09Z-22-00-21**	**1SBL 136 501 R2100**		0.310
		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	**AF16Z-22-00-21**	**1SBL 176 501 R2100**		0.310
		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

AF09 and AF16 4-pole Contactors - AF..Z Additional Coils
AC / DC Operated - with Screw Terminals

25 to 30 A

cULus CE



AF09Z-40-00



AF09Z-22-00

Application

AF09Z and **AF16Z** 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

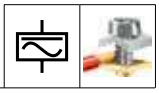
- **AF09Z** and **AF16Z** contactors include an electronic coil interface accepting a wide control voltage **U_c** min. ... **U_c** max and managing large control voltage variations.
  AF..Z contactors cover control voltages between 24...250 V 50/60 Hz or 12...250 V DC
- **AF..Z** contactors allow direct control by PLC-output ≥ 24 V DC 500 mA and obtain a reduced holding coil consumption.
  AF..Z contactors withstand short dips and voltage interruptions (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 θ ≤ 40 °C	General use rating 600 V AC	U_c min. ... U_c max.							Pack(ing) 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
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

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

AF09 and **AF16** 4-pole Contactors
Technical Data



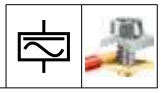
Main Pole - Utilization Characteristics according to IEC

Contactor types		AF09	AF16
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, $\theta \leq 40$ °C		35 A	35 A
with conductor cross-sectional area		6 mm²	6 mm²
AC-1 Utilization category			
for air temperature close to contactor			
I_e / AC-1 rated operational current	**$\theta \leq 40$ °C**	25 A	30 A
U_e max. ≤ 690 V, 50/60 Hz	**$\theta \leq 60$ °C**	25 A	30 A
	$\theta \leq 70$ °C	22 A	26 A
with conductor cross-sectional area		4 mm²	6 mm²
Short-circuit protection			
for contactors without thermal O/L relay - Motor protection excluded			
U_e ≤ 500 V AC - gG type fuse		25 A	32 A
Rated short-time withstand current I_{cw}	**1 s**	300 A	300 A
at 40 °C ambient temperature, in free air from a cold state	**10 s**	150 A	150 A
	30 s	80 A	80 A
	1 min	60 A	60 A
	15 min	35 A	35 A
Maximum breaking capacity	**at 440 V**	250 A	250 A
cos φ = 0.45	**at 690 V**	106 A	106 A
Heat dissipation per pole	**I_e / AC-1**	0.8 W	1.2 W
Max. electrical switching frequency	**AC-1**	600 cycles/h	

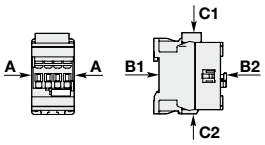
Main Pole - Utilization Characteristics according to UL / CSA

Contactor types	AF09	AF16
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
With conductor cross-sectional area	AWG 10	AWG 10
80 V DC - 1-pole for 4 N.O. main poles	25 A	30 A
With conductor cross-sectional area	AWG 10	AWG 10
80 V DC - 1-pole for 2 N.O. / 2 N.C. main poles	20 A	20 A
With conductor cross-sectional area	AWG 12	AWG 12
Max. electrical switching frequency		
for general use	600 cycles/h	

AF09 and **AF16** 4-pole Contactors
Technical Data



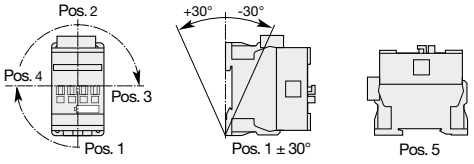
General Technical Data

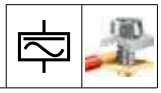
Contactor types			AF09	AF16
Rated insulation voltage U_i				
acc. to IEC 60947-4-1			690 V	
acc. to UL / CSA			600 V	
Rated impulse withstand voltage U_{imp}			6 kV	
Electromagnetic compatibility			Devices complying with IEC 60947-1 / EN 60947-1 - Environment A	
Ambient air temperature close to contactor				
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	
		A	30 g	
		B1	25 g Closed position / 5 g Open position	
		B2	15 g	
		C1	25 g	
		C2	25 g	
Vibration withstand acc. to IEC 60068-2-6			5 ... 300 Hz 4 g Closed position / 2 g Open position	

Magnet System Characteristics

Contactor types			AF09	AF16
Coil operating limits acc. to IEC 60947-4-1		**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	
		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 50/60 Hz	Rated control circuit voltage **U_c**		24 ... 500 V AC	
	Coil consumption	**Average pull-in value**	(AF) 50 VA - (AF..Z) 16 VA	
		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) -20 °C ≤ θ ≤ +60 °C			(AF..Z) 22 ms average for **U_c** = 24 ... 250 V 50/60Hz	
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
Mounting positions		
	Max. add-on N.C. auxiliary contacts: see accessory fitting details for a 4-pole contactor AF09 or AF16	
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	



Connecting Characteristics

Contactor types			AF09	AF16
Main terminals			 Screw terminals with cable clamp	
Connecting capacity (min. ... max.)				
Main conductors (poles)				
Rigid	solid (≤ 4 mm²)	**1 x**	1 ... 6 mm²	
	stranded (≥ 6 mm²)	**2 x**	1 ... 6 mm²	
Flexible with non insulated ferrule		**1 x**	0.75 ... 6 mm²	
		2 x	0.75 ... 6 mm²	
Flexible with insulated ferrule		**1 x**	0.75 ... 4 mm²	
		2 x	0.75 ... 2.5 mm²	
Bars or lugs		**L <**	9.6 mm	
Capacity according to UL/CSA		**1 or 2 x**	AWG 16 ... 10	
Stripping length			10 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	
Coil terminals			M3.5	
Screwdriver type			Flat Ø5.5 / Pozidriv 2	
Tightening torque				
Main pole terminals			1.5 Nm / 13 lb.in	
Coil terminals			1.2 Nm / 11 lb.in	

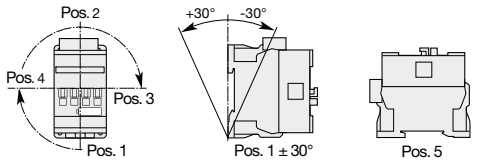
AF09 and **AF16** 4-pole Contactors
Main Accessories

Accessory fitting details for a 4-pole contactor AF09, AF16

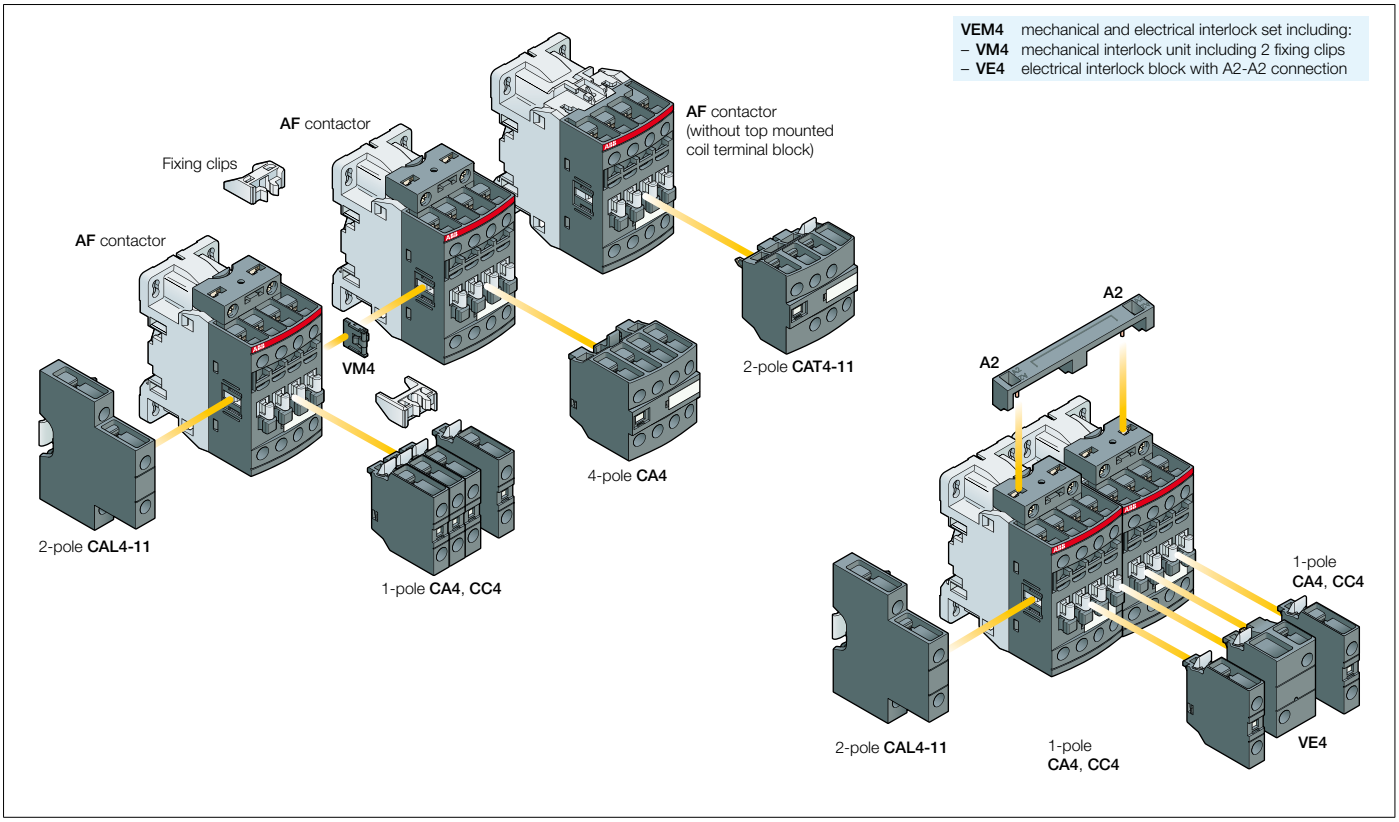
Many configurations of accessories are possible depending on whether these are front-mounted or side-mounted.

Contactor types	Main poles	Built-in auxiliary contacts	Front-mounted accessories: Auxiliary contact blocks									Electrical and mechanical interlock set (between 2 contactors)		Side-mounted accessories: Auxiliary contact blocks		
			1-pole **CA4**											Left side		Right side
			1-pole **CC4**		2-pole **CAT4-11**		4-pole **CA4**					**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	4 max.	or	1	or	1			-	+	1		-		
AF09 ... AF16	4	0 0	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													
AF09 ... AF16	2	2 0 0	4 max.	or	1	or	1			–	+	1		–		
AF09 ... AF16	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, AF16 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, AF16..-40-00	1	0 - -	**CA4-10**	**1SBN 010 110 R1010**		1	0.014
AF09, AF16..-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, AF16..-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, AF16..-40-00	-	- 1	0 **CC4-10**	**1SBN 010 111 R1010**		1	0.014
AF09, AF16..-22-00	-	- 0	1 **CC4-01**	**1SBN 010 111 R1001**		1	0.014
Side-mounted instantaneous auxiliary contact blocks							
AF09, AF16..-40-00	1	1 - -	**CAL4-11**	**1SBN 010 120 R1011**		1	0.040
AF09, AF16..-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, AF16..-40-00 AF09, AF16..-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...20 V DC.

Auxiliary Contact Blocks
Accessories for AF09, AF16 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 Icw		**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 Ø5.5 / Pozidriv 2
Tightening torque			1.2 Nm / 11 lb.in


VM4

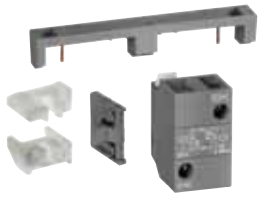
Mechanical interlock unit

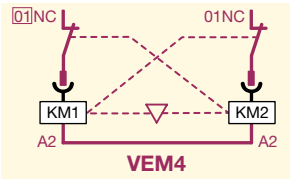
Description

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, AF16..-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	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, AF16..-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 Ø5.5 / Pozidriv 2
Tightening torque		1.2 Nm / 11 lb.in




LDC4


BX4

BX4-CA


BA4

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, AF16	**LDC4**	**1SBN 070 156 T1000**		10	0.010

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

Function markers

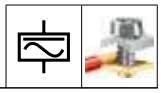
Description

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	0.220
HTP500 support plate	**HTP500-BA4**	**1SNA 235 712 R2400**		1	0.290

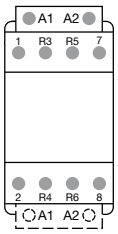
AF09, AF16 4-pole Contactors
Terminal Marking and Positioning



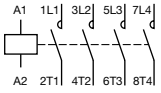
Standard devices without addition of auxiliary contacts



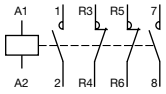
AF09, AF16..-40-00



AF09, AF16..-22-00

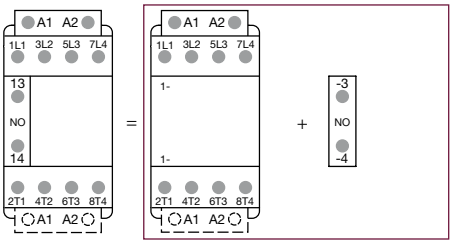


AF09, AF16..-40-00

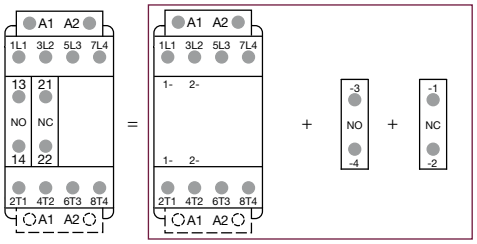


AF09, AF16..-22-00

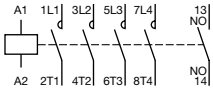
Other possible contact combinations with auxiliary contacts added by the user



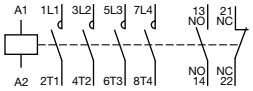
Combination 10 = AF09, AF16..-40-00 + CA4-10



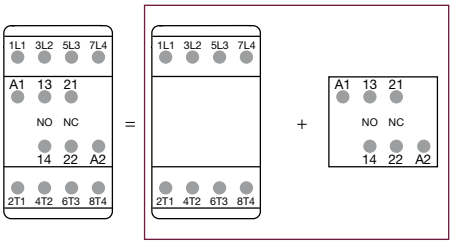
Combination 11 = AF09, AF16..-40-00 + CA4-10 + CA4-01



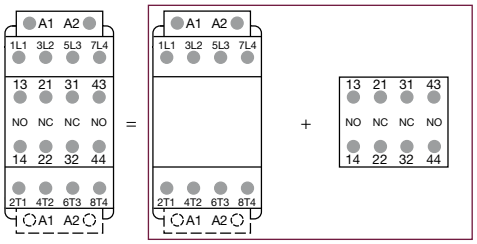
Combination 10



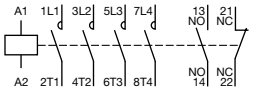
Combination 11



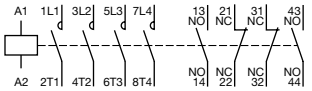
Combination 11 = AF09, AF16..-40-00 + CAT4-11E



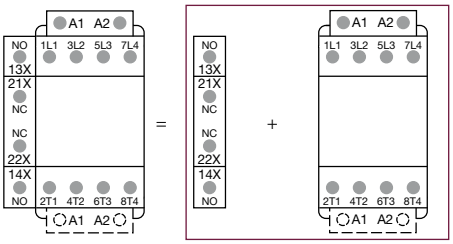
Combination 22 = AF09, AF16..-40-00 + CA4-22E



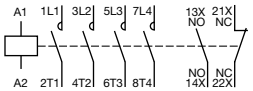
Combination 11



Combination 22



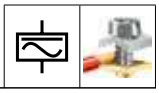
Combination 11 = CAL4-11 + AF09, AF16..-40-00



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

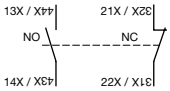


CC4-01

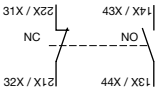


CC4-10

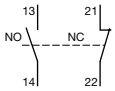
2-pole auxiliary contacts



CAL4-11
(Left side-mounted)

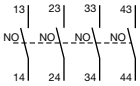


CAL4-11
(Right side-mounted)

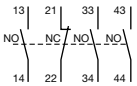


CAT4-11E

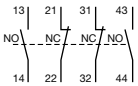
4-pole auxiliary contacts



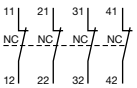
CA4-40E



CA4-31E

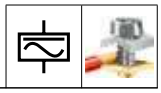


CA4-22E

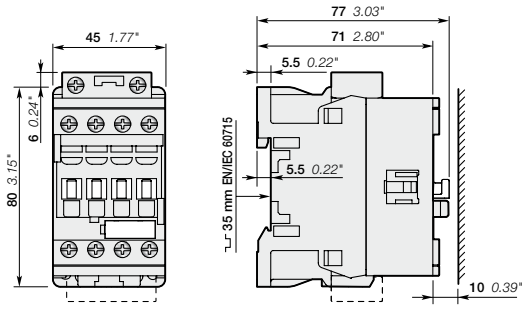


CA4-04E

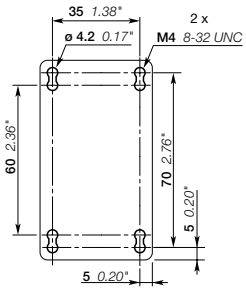
AF09, AF16 4-pole Contactors
AC / DC Operated - with Screw Terminals



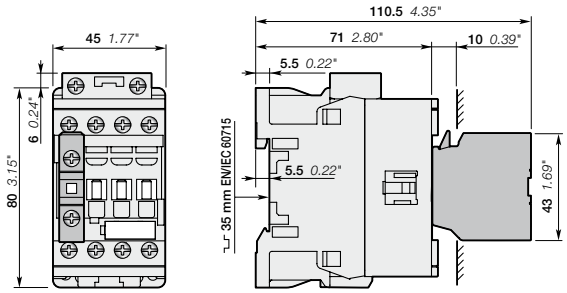
Dimensions mm, *inches*



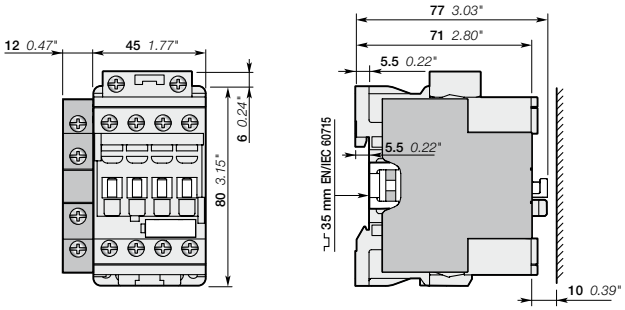
AF09, AF16



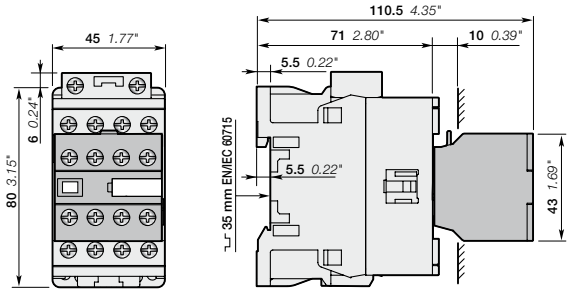
AF09, AF16



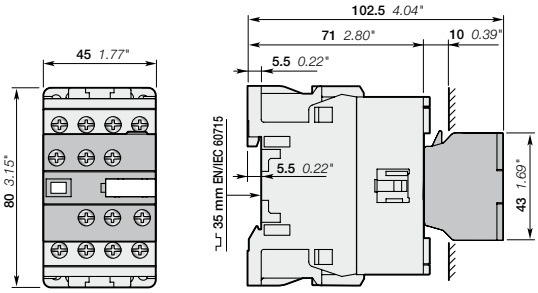
AF09, AF16
+ **CA4, CC4** 1-pole auxiliary contact block



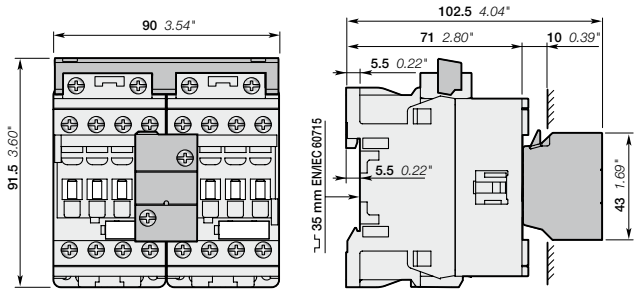
AF09, AF16
+ **CAL4-11** 2-pole auxiliary contact block



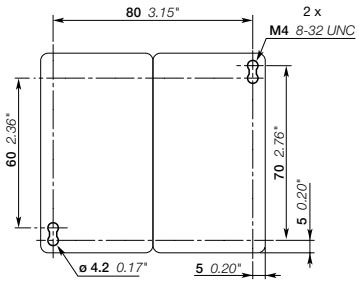
AF09, AF16
+ **CA4** 4-pole auxiliary contact block



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.

Contact us

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

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