AF30-30-00-.. / AF30Z-30-00-.. 3-pole Contactors AC / DC Operated - with Screw Terminals

AF30(Z) contactors are used for controlling power circuits up to 690 V AC and 220 V DC.
They are mainly used for controlling 3-phase motors, non-inductive or slightly inductive loads.

- AF..(Z) contactors include an electronic coil interface providing reduced pull-in and holding consumption, particularly for AC control circuits
- Only four coils are needed to cover control voltages between 24...500 V 50/60 Hz or 20...500 V DC.
  AF..(Z) offer extended operating limits and are suitable worldwide for different control voltages. e.g.: the coil 100...250 V 50/60 Hz - DC is suitable for Europe (230 V 50 Hz) and for North America (120 V 60 Hz and 208 V 60 Hz).
  AF..(Z) contactors can manage large control voltage variations
- AF..Z contactors equipped with a 24...60 V 50/60 Hz - 20...60 V DC coil allow direct control by 24 V DC 500 mA PLC-output
- 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.

		15 kW *20 hp*	

3D CAD outline drawings available on «Control Product 3D» portal

Ordering Details

IEC Rated power 400 V AC-3 **kW**	UL/CSA 3-phase motor rating 480 V **hp**	Control voltage Uc min. ... Uc max. **V 50/60 Hz**	 **V DC**	Main contacts	Auxiliary contacts fitted	Type	Order code	EAN		Weight Pack(ing) 1 piece kg
3-pole Contactors										
15	20	24...60	20...60	3 0	0 0	**AF30-30-00-11**	**1SBL 277 001 R1100**	3471523111219		0.310
		48...130	48...130	3 0	0 0	**AF30-30-00-12**	**1SBL 277 001 R1200**	3471523111226		0.310
		100...250	100...250	3 0	0 0	**AF30-30-00-13**	**1SBL 277 001 R1300**	3471523111233		0.310
		250...500	250...500	3 0	0 0	**AF30-30-00-14**	**1SBL 277 001 R1400**	3471523111240		0.350
3-pole Contactors - Low Consumption										
15	20	-	12...20	3 0	0 0	**AF30Z-30-00-20**	**1SBL 276 001 R2000**	3471523114401		0.350
		24...60	20...60	3 0	0 0	**AF30Z-30-00-21**	**1SBL 276 001 R2100**	3471523114418		0.350
		48...130	48...130	3 0	0 0	**AF30Z-30-00-22**	**1SBL 276 001 R2200**	3471523114425		0.350
		100...250	100...250	3 0	0 0	**AF30Z-30-00-23**	**1SBL 276 001 R2300**	3471523114432		0.350

Note: AF30-30-00-11 not suitable for a direct control by PLC-output. AF30-30-00-11 available in some countries: please consult your ABB representative.

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

Certifications and Approvals

CE cULus CCC GOST C-Tick

Main Pole - Utilization Characteristics according to IEC

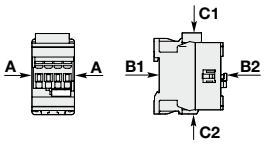
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1
Rated operational voltage Ue max.		690 V
Rated frequency limits		25 ... 400 Hz
Conventional free-air thermal current Ith		
acc. to IEC 60947-4-1, open contactors, θ ≤ 40 °C		50 A
with conductor cross-sectional area		10 mm²
AC-1 Utilization category		
for air temperature close to contactor		
Ie / AC-1 rated operational current	**θ ≤ 40 °C**	50 A
Ue max. ≤ 690 V, 50/60 Hz	**θ ≤ 60 °C**	42 A
	θ ≤ 70 °C	37 A
with conductor cross-sectional area		10 mm²
AC-3 Utilization category		
for air temperature close to contactor θ ≤ 60 °C		
(for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz, 3-phase motors)		
Ie / AC-3 max. rated operational current	**220-230-240 V**	33 A
3-phase motors	**380-400 V**	32 A
	415 V	32 A
	440 V	32 A
	500 V	28 A
	690 V	21 A
AC-3 rated operational power	**220-230-240 V**	9 kW
1500 r.p.m. 50 Hz 1800 r.p.m. 60 Hz 3-phase motors	**380-400 V**	15 kW
	415 V	15 kW
	440 V	18.5 kW
	500 V	18.5 kW
	690 V	18.5 kW
Rated making capacity AC-3		10 x Ie AC-3 acc. to IEC 60947-4-1
Rated breaking capacity AC-3		8 x Ie AC-3 acc. to IEC 60947-4-1
AC-8a Utilization category		
(without thermal overload relay - Ue 400 V - θ ≤ 40 °C)		
Ie / AC-8a rated operational current		40 A
AC-8a rated operational power		20 kW
Short-circuit protection for contactors		
without thermal O/L relay - Motor protection excluded		
Ue ≤ 500 V AC - gG type fuse		63 A
Rated short-time withstand current Icw	**1 s**	700 A
at 40 °C ambient temperature, in free air from a cold state	**10 s**	350 A
	30 s	225 A
	1 min	150 A
	15 min	50 A
Maximum breaking capacity	**at 440 V**	500 A
cos φ = 0.45	**at 690 V**	200 A
Heat dissipation per pole	**Ie / AC-1**	2.4 W
	Ie / AC-3	0.9 W
Max. electrical switching frequency	**AC-1**	600 cycles/h
	AC-3	1200 cycles/h
	AC-2, AC-4	150 cycles/h

Main Pole - Utilization Characteristics according to UL / NEMA / CSA

Standards		UL 508, CSA C22.2 N°14
Rated operational voltage Ue max.		600 V
NEMA size		-
NEMA continuous amp rating	**thermal current**	
NEMA maximum H.P. ratings 1-phase, 60 Hz	**115 V AC**	
	230 V AC	
NEMA maximum H.P. ratings 3-phase, 60 Hz	**200 V AC**	
	230 V AC	
	460 V AC	
	575 V AC	
UL General use rating		
600 V AC		50 A
With conductor cross-sectional area		AWG 8
80 V DC - 1-pole		50 A
With conductor cross-sectional area		AWG 8
UL maximum 1-phase motor rating		
Amp-rating	**120 V AC**	24 A
	240 V AC	28 A
Motor power	**120 V AC**	2 hp
	240 V AC	5 hp
UL maximum 3-phase motor rating		
Amp-rating	**200-208 V AC**	32.2 A
	220-240 V AC	28 A
	440-480 V AC	27 A
	550-600 V AC	On request
Motor power	**200-208 V AC**	10 hp
(for 1500 r.p.m., 50 Hz or 1800 r.p.m., 60 Hz 3-phase motors)	**220-240 V AC**	10 hp
	440-480 V AC	20 hp
	550-600 V AC	On request
Short-circuit protection		
for contactors without thermal O/L relay - Motor protection excluded		
Fuse rating		150 A
Fuse type, 600 V		NTD
Max. electrical switching frequency		
for general use		600 cycles/h
for motor use		1200 cycles/h

General Technical Data

Rated insulation voltage Ui		
acc. to IEC 60947-4-1		690 V
acc. to UL /CSA		600 V
Rated impulse withstand voltage Uimp.		6 kV
Electromagnetic compatibility		Devices complying with IEC 60947-1 / EN 60947-1 - Environment A
Ambient air temperature close to contactor		
Operation	fitted with thermal overload relay	-25 ... +60 °C
	without thermal overload relay	-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		



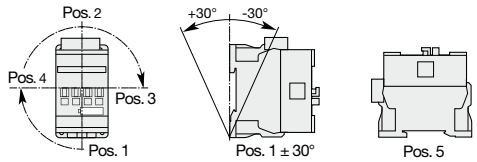
Closed or open position

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	5 ... 300 Hz
acc. to IEC 60068-2-6	4 g Closed position / 2 g Open position

Magnet System Characteristics

Coil operating limits		**AC supply**	at θ ≤ 60 °C 0.85 x Uc min ... 1.1 x Uc max at θ ≤ 70 °C 0.85 x Uc min ... Uc max
acc. to IEC 60947-4-1		**DC supply**	at θ ≤ 60 °C 0.85 x Uc min ... 1.1 x Uc max at θ ≤ 70 °C (AF) 0.85 x Uc min ... Uc max - (AF..Z) 0.85 x Uc min ... 1.1 x Uc max
AC control voltage	Rated control circuit voltage Uc		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 Uc		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 Uc min.			≤ 60 % Uc 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 Uc = 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

Mounting positions	
	Max. N.C. built-in and add-on N.C. auxiliary contacts: see accessory fitting details for a 3-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

Connecting Characteristics

Main terminals			 Screw terminals with cable clamp
Connecting capacity (min. ... max.)			
Main conductors (poles)			
Rigid	solid (≤ 4 mm²)	**1 x**	2.5 ... 10 mm²
	stranded (≥ 6 mm²)	**2 x**	2.5 ... 10 mm²
Flexible with non insulated ferrule		**1 x**	1.5 ... 10 mm²
		2 x	1.5 ... 10 mm²
Flexible with insulated ferrule		**1 x**	1.5 ... 10 mm²
		2 x	1.5 ... 4 mm²
Bars or lugs		**L <**	12.5 mm
Capacity according to UL/CSA		**1 or 2 x**	AWG 14 ... 8
Stripping length			14 mm
Auxiliary conductors			
(built-in auxiliary terminals + coil terminals)			
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
Built-in auxiliary terminals			
Screw terminals			(delivered in open position, screws of unused terminals must be tightened)
Main terminals			M4
Coil terminals			M3.5
Built-in auxiliary terminals			
Screwdriver type			Flat Ø 5.5 / Pozidriv 2
Tightening torque			
Main pole terminals			2.5 Nm / 22 lb.in
Coil terminals			1.2 Nm / 11 lb.in
Built-in auxiliary terminals			

Main Accessories

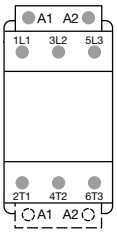
Ordering Details

Description		Auxiliary contacts	Type	Order code	EAN	Pack(ing) piece	Weight kg (1 pce)
Additional auxiliary contact blocks	Front-mounted instantaneous auxiliary contact blocks	0 1 - -	**CA4-01**	**1SBN 010 110 R1001**	3471523130029	1	0.014
		1 0 - -	**CA4-10**	**1SBN 010 110 R1010**	3471523130005	1	0.014
		0 1 - -	**CA4-01-T**	**1SBN 010 110 T1001**	3471523130395	10	0.014
		1 0 - -	**CA4-10-T**	**1SBN 010 110 T1010**	3471523130371	10	0.014
	Front-mounted auxiliary contact blocks with N.O. leading contact and N.C. lagging contact	- - 0 1	**CC4-01**	**1SBN 010 111 R1001**	3471523130432	1	0.014
		- - 1 0	**CC4-10**	**1SBN 010 111 R1010**	3471523130425	1	0.014
	Side-mounted instantaneous auxiliary contact blocks	1 1 - -	**CAL4-11**	**1SBN 010 120 R1011**	3471523130043	1	0.040
		1 1 - -	**CAL4-11-T**	**1SBN 010 120 T1011**	3471523130418	10	0.040
	Front-mounted instantaneous auxiliary contact blocks	0 4 - -	**CA4-04E**	**1SBN 010 140 R1004**	3471523130159	1	0.055
		2 2 - -	**CA4-22E**	**1SBN 010 140 R1022**	3471523130128	1	0.055
		3 1 - -	**CA4-31E**	**1SBN 010 140 R1031**	3471523130135	1	0.055
		4 0 - -	**CA4-40E**	**1SBN 010 140 R1040**	3471523130142	1	0.055
	Front-mounted instantaneous auxiliary contact and A1/A2 coil terminal blocks	1 1 - -	**CAT4-11E**	**1SBN 010 151 R1011**	3471523130067	1	0.040
Interlocks	Mechanical interlock unit		**VM4**	**1SBN 030 105 T1000**	3471523130609	10	0.005
	Mechanical and electrical interlock set	1 1 - -	**VEM4**	**1SBN 030 111 R1000**	3471523130616	1	0.035
	Fixing clips		**BB4**	**1SBN 110 120 W1000**	3471523130722	50	0.002
Connection accessories for starting	Connecting links with manual motor starters		**BEA26-4**	**1SBN 082 306 T1000**	3471523130746	10	0.025
			BEA38-4	**1SBN 082 306 T2000**	3471523130753	10	0.030
	Connection sets for reversing contactors		**BER38-4**	**1SBN 082 311 R1000**	3471523130784	1	0.100
Additional coil terminal block	Additional coil terminal block		**LDC4**	**1SBN 070 156 T1000**	3471523130678	10	0.010
Protective covers	Protective covers		**BX4**	**1SBN 110 108 T1000**	3471523130708	10	0.006
			BX4-CA	**1SBN 110 109 W1000**	3471523130715	50	0.001
Function markers	Function markers		**BA4**	**1SNA 235 156 R2700**	3472592351568	16	0.011
			HTP500-BA4	**1SNA 235 712 R2400**	3472592357126	1	0.220
			SPRC 1	**1SNA 360 010 R1500**	3472593600108	1	0.290

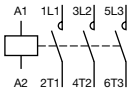
Note:
- CAT4: not fittable on AF..Z contactors with DC control voltage 12...20VDC.
- VM4: includes 2 fixing clips (BB4) to maintain together both contactors.
- VEM4: includes a VM4 mechanical interlock unit with 2 fixing clips (BB4), a VE4 electrical interlock block and A2-A2 connection.
VE4 block must be used with its A2-A2 connection to respect the electrical connection diagram.
VEM4 not fittable on AF..Z contactors with DC control voltage 12...20 V DC.

Terminal Marking and Positioning

Standard devices without addition of auxiliary contacts

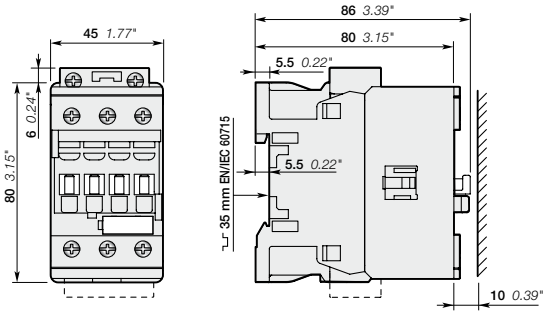


AF30-30-00-.. / AF30Z-30-00-..

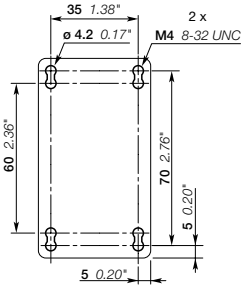


AF30-30-00-.. / AF30Z-30-00-..

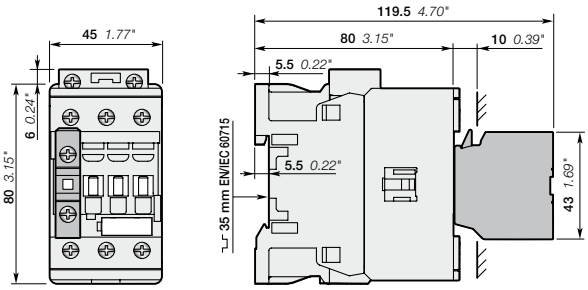
Dimensions mm, inches



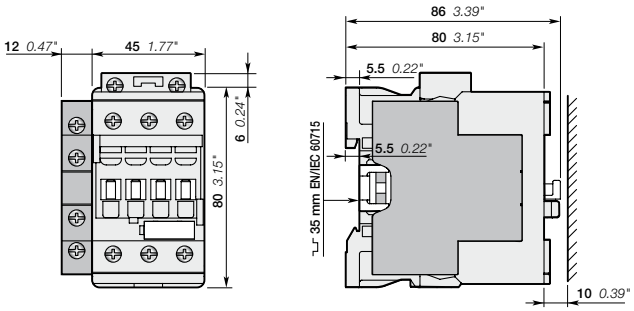
AF30



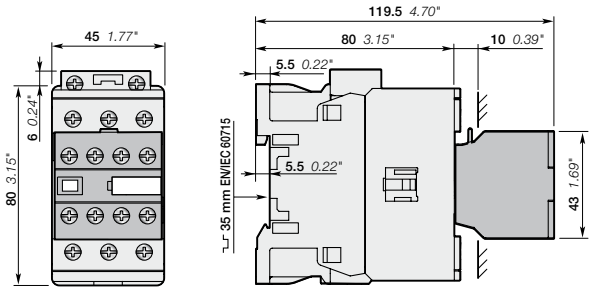
AF30



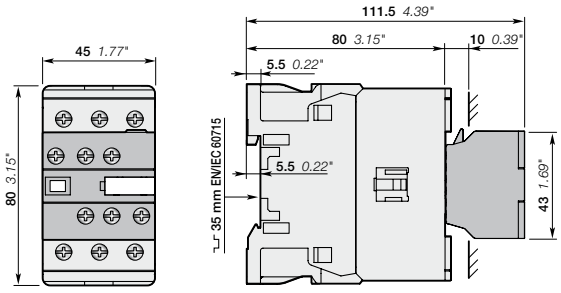
AF30
+ CA4, CC4 1-pole auxiliary contact block



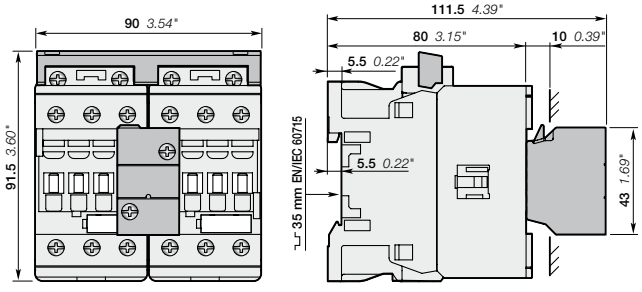
AF30
+ CAL4-11 2-pole auxiliary contact block



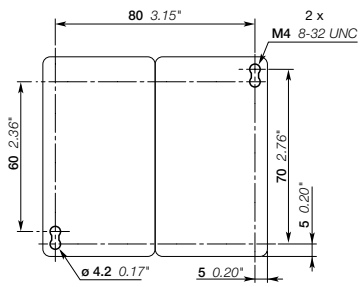
AF30
+ CA4 4-pole auxiliary contact block



AF30
+ CAT4 2-pole auxiliary contact and coil terminal block



AF30
+ VEM4 mechanical and electrical interlock set



AF30
+ 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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