

NF44E-.. / NFZ44E-.. Contactor Relays AC / DC Operated - with Screw Terminals

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

- NF(Z) contactor relays 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

NF(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).

NF(Z) contactors can manage large control voltage variations.

- NFZ contactor relays 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
- NFZ contactor relays withstand short voltage dips and voltage sags (SEMI F47-0706 compliance)
- NF(Z) contactor relays have built-in surge protection and do not require additional surge suppressors
- The contactor relays have mechanically-linked auxiliary contacts compliant with Annex L of IEC 60947-5-1 and include the "Mechanically Linked" symbol on their side.



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

Ordering Details

[illegible]

Contactor Relays

	24...60	20...60	NF44E-11	1SBH137001R1144	3471523100718	0.320
	48...130	48...130	NF44E-12	1SBH137001R1244	3471523100725	0.320
	100...250	100...250	NF44E-13	1SBH137001R1344	3471523100732	0.320
	250...500	250...500	NF44E-14	1SBH137001R1444	3471523100749	0.360

Note: NF44E-11 not suitable for a direct control by PLC-output. NF44E-11 available in some countries: please consult your ABB representative.

Contactor Relays - Low Consumption

	-	12...20	NFZ44E-20	1SBH136001R2044	3471523102309	0.360
	24...60	20...60	NFZ44E-21	1SBH136001R2144	3471523102316	0.360
	48...130	48...130	NFZ44E-22	1SBH136001R2244	3471523102323	0.360
	100...250	100...250	NFZ44E-23	1SBH136001R2344	3471523102330	0.360

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

Certifications and Approvals



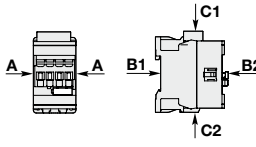
Contact Utilization Characteristics according to IEC

Standards		IEC 60947-1 / 60947-5-1 and EN 60947-1 / 60947-5-1
Rated operational voltage U_e max.		690 V
Conventional free-air thermal current I_{th} $\theta \leq 40$ °C		16 A
Rated frequency limits		25 ... 400 Hz
Rated operational current I_e / AC-15		
acc. to IEC 60947-5-1	24-127 V 50/60 Hz	6 A
	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 AC-15		10 x I_e AC-15 acc. to IEC 60947-5-1
Breaking capacity AC-15		10 x I_e AC-15 acc. to IEC 60947-5-1
Rated operational current I_e / DC-13		
acc. to IEC 60947-5-1	24 V DC	6 A / 144 W
	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
	for 0.1 s	140 A
Minimum switching capacity		12 V / 3 mA
with failure rate acc. to IEC 60947-5-4		10^{-7}
Non-overlapping time between N.O. and N.C. contacts		≥ 2 ms
Heat dissipation per pole at 6 A		0.1 W
Max. electrical switching frequency	AC-15	1200 cycles/h
	DC-13	900 cycles/h

Main Pole - 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

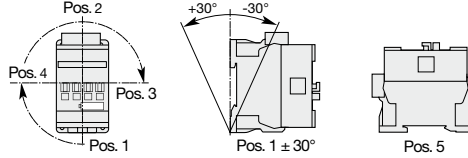
General Technical Data

Rated insulation voltage U_i		
acc. to IEC 60947-5-1		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		20 millions operating cycles
Max. switching frequency		6000 cycles/h
Shock withstand acc. IEC 60068-2-27 and EN 60068-2-27		
Mounting position 1		
		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 $\theta \leq 60^\circ\text{C}$ 0.85 x U_c min ... 1.1 x U_c max at $\theta \leq 70^\circ\text{C}$ 0.85 x U_c min ... U_c max
acc. to IEC 60947-5-1		DC supply	at $\theta \leq 60^\circ\text{C}$ 0.85 x U_c min ... 1.1 x U_c max at $\theta \leq 70^\circ\text{C}$ (NF) 0.85 x U_c min ... U_c max - (NFZ) 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	(NF) 50 VA - (NFZ) 16 VA
		Average holding value	(NF) 2.2 VA / 2 W - (NFZ) 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	(NF) 50 W - (NFZ) 12 ... 16 W
		Average holding value	(NF) 2 W - (NFZ) 1.7 W
PLC-Output control			(NFZ) ≥ 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			(NFZ) conditions of use on request
Dips withstand (level 0% according to IEC 61000-4-11)			(NFZ) 22 ms average for $U_c = 24 \dots 250 \text{ V } 50/60\text{Hz}$
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		
Mounting distances		Max. add-on N.C. auxiliary contacts: see accessory fitting details for a NF contactor relay
Fixing		The contactor relays can be assembled side by side.
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

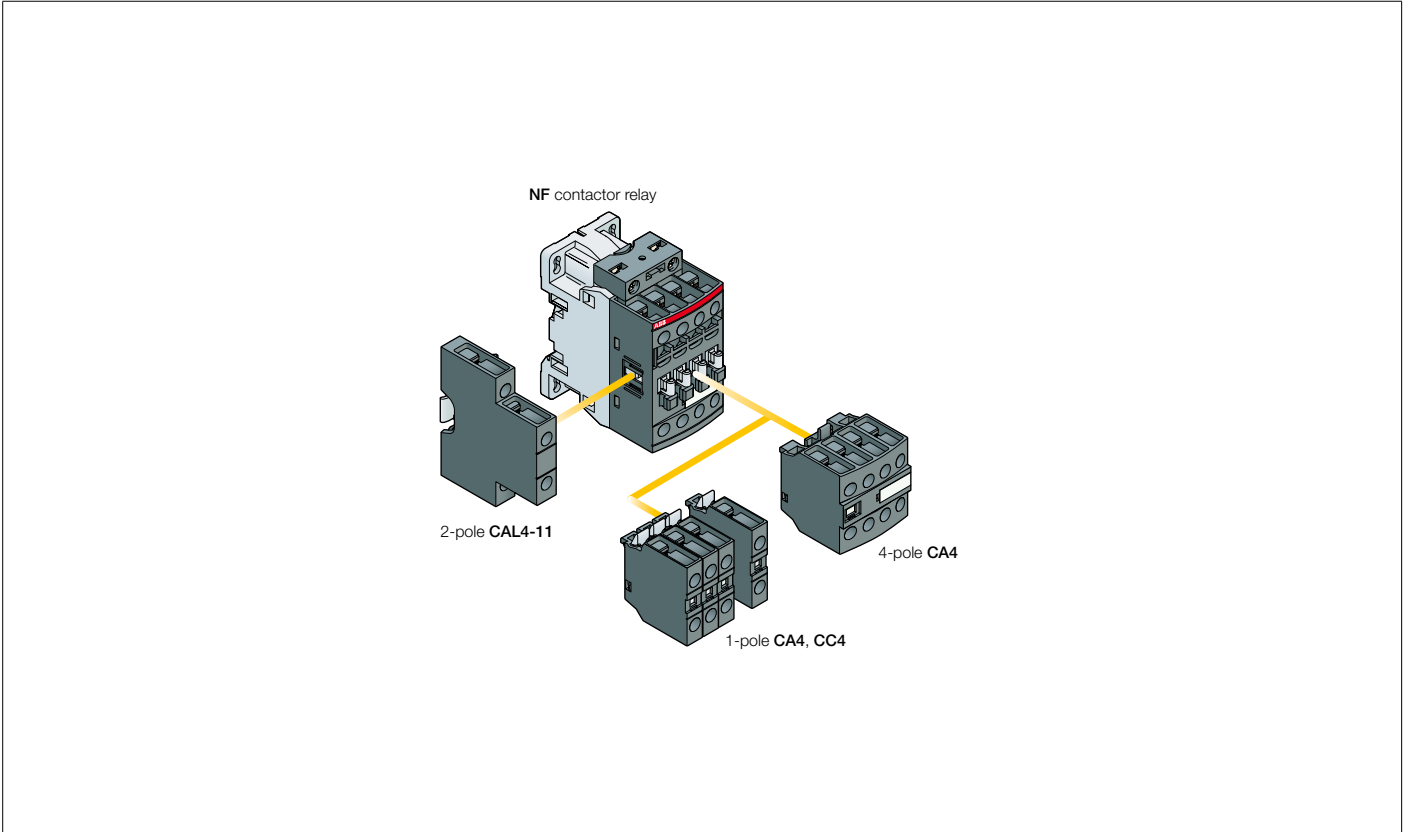
Main terminals			
		Screw terminals with cable clamp	
Connecting capacity (min. ... max.)			
Pole and coil terminals			
	Rigid	1 x	1 ... 2.5 mm²
		2 x	1 ... 2.5 mm²
	Flexible with non insulated ferrule	1 x	0.75 ... 2.5 mm²
		2 x	0.75 ... 2.5 mm²
	Flexible with insulated ferrule	1 x	0.75 ... 2.5 mm²
		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			
All terminals			IP20
Screw terminals			(delivered in open position, screws of unused terminals must be tightened)
All terminals			M3.5
Screwdriver type			Flat Ø 5.5 / Pozidriv 2
Tightening torque			
Pole terminals			1.2 Nm / 11 lb.in
Coil terminals			1.2 Nm / 11 lb.in

Accessory Fitting Details for a NF Contactor Relay

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

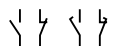
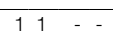
Front-mounted accessories			Side-mounted accessories	
Auxiliary contact blocks			Auxiliary contact blocks	
1-pole CA4			Left side	Right side
1-pole CC4	4-pole CA4		2-pole CAL4-11	
-	-		1	-

Overview of main accessories (other accessories available)



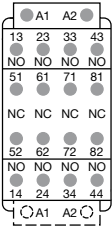
Main Accessories

Ordering Details

Description		Auxiliary contacts	Type	Order code	EAN	Pack ^(ing) piece	Weight kg ^(1 pce)
Additional auxiliary contact blocks	Side-mounted instantaneous auxiliary contact blocks	 1 1 - -	CAL4-11	1SBN010120R1011	3471523130043	1	0.040
		 1 1 - - -	CAL4-11-T	1SBN010120T1011	3471523130418	10	0.040
Additional coil terminal block	Additional coil terminal block		LDC4	1SBN070156T1000	3471523130678	10	0.010
Protective covers	Protective covers		BX4-CA	1SBN110109W1000	3471523130715	50	0.001
Function markers	Function markers		BA4	1SNA235156R2700	3472592351568	16	0.011
			HTP500-BA4	1SNA235712R2400	3472592357126	1	0.220
			SPRC 1	1SNA360010R1500	3472593600108	1	0.290

Terminal Marking and Positioning

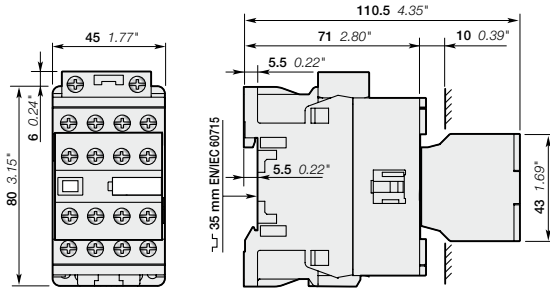
Standard devices without addition of auxiliary contacts



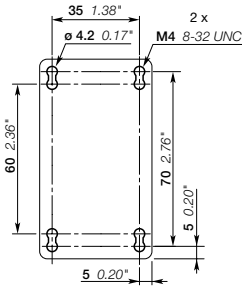
NF44E-.. / NFZ44E-..

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Dimensions mm, inches



NF44E



NF44E

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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