

IEC/UL/CSA Technical data

A/E/F45...A/E/F75, 4-pole

Utilization characteristics

Main pole - Utilization characteristics according to IEC

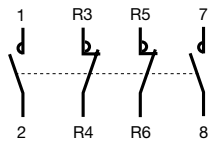
Contactor types	AC operated	A45	A50	A75
	DC operated	AE45	AE50	AE75
		TAE45	TAE50	TAE75
	AC / DC operated	AF45	AF50	AF75
Standards		IEC 60947-1 / 60947-4-1 and EN 60947-1 / 60947-4-1		
Rated operational voltage U_e max.		1000 V (690 V for AF.. contactors)		
Rated frequency (without derating)		50 / 60 Hz		
Conventional free-air thermal current I_{th}				
acc. to IEC 60947-4-1, open contactors, $\theta \leq 40^\circ\text{C}$		100 A	100 A	125 A
With conductor cross-sectional area		35 mm ²	35 mm ²	50 mm ²
AC-1 Utilization category				
For air temperature close to contactor				
I_e / Rated operational current AC-1	$\theta \leq 40^\circ\text{C}$	70 A	100 A	125 A
U _e max. $\leq 690\text{ V}$, 50/60 Hz	$\theta \leq 55^\circ\text{C}$	60 A	85 A	105 A
	$\theta \leq 70^\circ\text{C}$ (1)	50 A	70 A	85 A
With conductor cross-sectional area		25 mm ²	35 mm ²	50 mm ²
Short-circuit protection device for contactors				
without thermal overload relay - Motor protection excluded				
U _e $\leq 500\text{ V AC}$ - gG type fuse		80 A	100 A	160 A
Rated short-time withstand current I_{cw}				
At 40 °C ambient temperature,	1 s	1000 A		
in free air from a cold state	10 s	650 A		
	30 s	370 A		
	1 min	250 A		
	15 min	110 A	110 A	135 A
Power dissipation per pole	I _e / AC-1	2.5 W	5 W	7 W
Max. electrical switching frequency	AC-1	600 cycles/h (300 for AF.., AE.., TAE..)		

(1) Unauthorized for TAE.. contactors

Main pole - Utilization characteristics according to UL / CSA

Contactor types	AC operated	A45	A50	A75
	DC operated	AE45	AE50	AE75
		TAE45	TAE50	TAE75
	AC / DC operated	AF45	AF50	AF75
Standards		UL 508, CSA C22.2 N°14		
Max. operational voltage		600 V		
UL / CSA general use rating				
600 V AC		65 A	80 A	105 A
With conductor cross-sectional area		AWG 6	AWG 4	AWG 2
Max. electrical switching frequency				
For general use		600 cycles/h (300 for AF.., AE.., TAE..)		

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



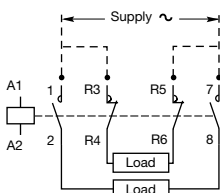
These contactors are suitable for controlling 2 separate circuits, i.e. 2 loads with 2 separate supplies, or 1 circuit comprising 2 separate loads with a single supply (see diagrams below). When the contactor operates there is no mechanical overlapping between the N.O. poles and the N.C. poles: BREAK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



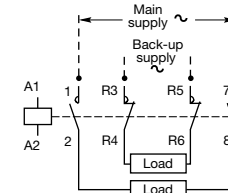
These contactors are not suitable for a reversing starter or for controlling a single load from 2 separate supplies.

Block diagrams

– Single supply and 2 separate loads



– 2 separate supplies and 2 separate loads



General technical data

AF45...AF75

Coil & mounting characteristics

Magnet system characteristics

Contactor types	AC / DC operated	AF45	AF50	AF75
Coil operating limits acc. to IEC 60947-4-1	AC or DC supply	At $\theta \leq 70\text{ }^{\circ}\text{C}$ $0.85 \times U_c \text{ min.} \dots 1.1 \times U_c \text{ max.}$ Please also refer to "Mounting characteristics and conditions for use"		
AC control voltage 50/60 Hz	Rated control circuit voltage U_c	48...250 V		
	Coil consumption	210 VA		
	Average pull-in value	7 VA / 2.8 W		
DC control voltage	Rated control circuit voltage U_c	20...250 V DC		
	Coil consumption	190 W		
	Average holding value	2.8 W		
Drop-out voltage		55 % of U_c min.		
Voltage sag immunity acc. to SEMI F47		Conditions of use on request		
Dips withstand		≥ 20 ms		
Operating time				
Between coil energization and:	N.O. contact closing	30...100 ms		
	N.C. contact opening	27...95 ms		
Between coil de-energization and:	N.O. contact opening	30...110 ms		
	N.C. contact closing	35...115 ms		

Mounting characteristics and conditions for use

Contactor types	AC / DC operated	AF45	AF50	AF75
Mounting positions				
		Pos. 5 unauthorized for AF45-22-00, AF75-22-00 contactors Max. and add-on N.O. or N.C. auxiliary contacts: see accessory fitting details for 4-pole contactor AF45 ... AF110		
Control voltage / Ambient temperature				
Mounting positions 1, 1±30°, 2, 3, 4, 5	at $\theta \leq 70\text{ }^{\circ}\text{C}$	0.85 x U_c min... 1.1 x U_c max.		
positions 6		Unauthorized		
Mounting distances		The contactors can be assembled side by side		
Fixing	On rail according to IEC 60715, EN 60715	35 x 15 mm or 75 x 25 mm		
	By screws (not supplied)	2 x M6 screws placed diagonally		

General technical data

A/E/F45...A/E/F75, 4-pole

General technical data

Contactor types	AC operated	A45	A50	A75
	DC operated	AE45	AE50	AE75
		TAE45	TAE50	TAE75
AC / DC operated	AF45	AF50	AF75	
Rated insulation voltage U_i				
acc. to IEC 60947-4-1		1000 V		
acc. to UL / CSA		600 V		
Rated impulse withstand voltage U_{imp}				
8 kV				
Electromagnetic compatibility				
AF contactors complying with IEC 60947-1 / EN 60947-1 - Environment A				
Ambient air temperature close to contactor				
Operation		-40...+70 °C (1)		
Storage		-60...+80 °C		
Climatic withstand				
acc. to IEC 60068-2-30 and 60068-2-11 - UTE C 63-100 specification II				
Maximum operating altitude (without derating)				
3000 m				
Mechanical durability				
Number of operating cycles		10 millions operating cycles (5 millions for AE... and TAE... contactors)		
Max. switching frequency		3600 cycles/h (300 for AF..)		
Shock withstand				
acc. to IEC 60068-2-27 and EN 60068-2-27				
Mounting position 1				
<p>4 N.O. Main poles</p> <p>2 N.O. + 2 N.C. Main poles</p>		Shock direction	1/2 sinusoidal shock for 11 ms: no change in contact position, closed or open position	
		A	20 g	
		B1	10 g closed position / 5 g open position	
		B2	15 g	
		C1	20 g	
		C2	20 g	
		A	20 g	
		B1	10 g closed position / 5 g open position (2)	
		B2	15 g (3)	
		C1	20 g	
C2	20 g			

(1) 55 °C max. for TAE... contactors.

(2) 3 g in open position for AF 45-22, AE 45-22, AF 75-22 and AE 75-22.












(3) 10 g for AF 45-22, AE 45-22, AF 75-22 and AE 75-22.

General technical data

A/E/F45...A/E/F75

Terminal characteristics

Connecting characteristics

Contactor types	AC operated	A45	A50	A75
	DC operated	AE45	AE50	AE75
		TAE45	TAE50	TAE75
	AC / DC operated	AF45	AF50	AF75
Main terminals		 Screw terminals with single connector (13 x 10 mm)		
Connection capacity (min. ... max.)				
Main conductors (poles)				
 Rigid	Solid ($\leq 4 \text{ mm}^2$)	} 1 x	6...50 mm ²	
 Stranded ($\geq 6 \text{ mm}^2$)			2 x	6...25 mm ²
 Flexible with ferrule		1 x	6...35 mm ²	
 Flexible with ferrule		2 x	6...16 mm ²	
 Bars or lugs		L \leq	-	
		L $>$	-	
Connection capacity acc. to UL/CSA (Sol/Str)		1 or 2 x	AWG 8...1	
Tightening torque	Recommended		4.00 Nm / 35 lb.in	
	Max.		4.50 Nm	
Auxiliary conductors (built-in auxiliary terminals + coil terminals)				
 Rigid solid		1 x	1...4 mm ²	
 Rigid solid		2 x	1...4 mm ²	
 Flexible with ferrule		1 x	1...2.5 mm ²	
 Flexible with ferrule		2 x	0.75...2.5 mm ²	
 Lugs		L \leq	8 mm	
		L $>$	3.7 mm	
Connection capacity acc. to UL/CSA (Sol/Str)		1 or 2 x	AWG 18...14	
Tightening torque	Recommended		1.00 Nm / 9 lb.in	
	Max.		1.20 Nm	
Degree of protection acc. to IEC 60947-1 / EN 60947-1 and IEC 60529 / EN 60529				
Main terminals			IP10	
Coil terminals			IP20	
Screw terminals			Delivered in open position, screws of unused terminals must be tightened	
Main terminals			M6	
	Screwdriver type		Flat \varnothing 6.5 / Pozidriv 2	
Coil terminals			M3.5	
	Screwdriver type		Flat \varnothing 5.5 / Pozidriv 2	