



Product designation				Power contactor
Product type designation				BFS12
Contact characteristics				
Number of poles	Nr.			3
Rated insulation voltage U_i IEC/EN	V			690
Rated impulse withstand voltage U_{imp}	kV			6
Operational frequency	min	Hz	25	
	max	Hz	400	
IEC Conventional free air thermal current I_{th}	A			28
Operational current I_e	AC-1 ($\leq 40^\circ\text{C}$)	A	28	
	AC-1 ($\leq 40^\circ\text{C}$) with 16mm ² wire and fork end lug	A	0	
	AC-1 ($\leq 55^\circ\text{C}$)	A	23	
	AC-1 ($\leq 55^\circ\text{C}$) with 16mm ² wire and fork end lug	A	0	
	AC-1 ($\leq 70^\circ\text{C}$)	A	20	
	AC-1 ($\leq 70^\circ\text{C}$) with 16mm ² wire and fork end lug	A	0	
	AC-3 ($\leq 440\text{V } \leq 55^\circ\text{C}$)	A	12	
	AC-4 (400V)	A	7.9	
Rated operational power AC-3 ($T \leq 55^\circ\text{C}$)	230V	kW	3.2	
	400V	kW	5.7	
	415V	kW	6.2	
	440V	kW	5.5	
	500V	kW	5	
	690V	kW	5	
Rated operational power AC-1 ($T \leq 40^\circ\text{C}$)	230V	kW	10	
	400V	kW	18	
	500V	kW	23	
	690V	kW	32	
IEC max current I_e in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series	$\leq 24\text{V}$	A	17	
	48V	A	15	
	75V	A	13	
	110V	A	6	
	220V	A	-	
	IEC max current I_e in DC1 with $L/R \leq 1\text{ms}$ with 2 poles in series	$\leq 24\text{V}$	A	20
48V		A	20	
75V		A	18	
110V		A	13	
220V		A	1	
IEC max current I_e in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series		$\leq 24\text{V}$	A	22

	48V	A	22
	75V	A	20
	110V	A	16
	220V	A	11
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IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series	≤24V	A	20
	48V	A	20
	75V	A	20
	110V	A	16
	220V	A	12
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IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series	≤24V	A	12
	48V	A	11
	75V	A	10
	110V	A	2
	220V	A	–
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IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series	≤24V	A	15
	48V	A	13
	75V	A	12
	110V	A	8
	220V	A	2
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IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series	≤24V	A	18
	48V	A	18
	75V	A	15
	110V	A	12
	220V	A	6
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IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series	≤24V	A	15
	48V	A	15
	75V	A	15
	110V	A	16
	220V	A	7
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Short-time allowable current for 10s (IEC/EN60947-1)		A	150
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Protection fuse	gG (IEC)	A	32
	aM (IEC)	A	12
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Making capacity (RMS value)		A	120
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Breaking capacity at voltage	440V	A	96
	500V	A	96
	690V	A	94
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Resistance per pole (average value)		mΩ	2.5
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Power dissipation per pole (average value)	Ith	W	2
	AC-3	W	0.4
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Tightening torque for terminals	min	Nm	1.5
	max	Nm	1.8
	min	Ibin	1.1
	max	Ibin	1.5
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Tightening torque for coil terminal			

	min	Nm	0.8
	max	Nm	1
	min	I _{bin}	0.8
	max	I _{bin}	0.74
Max number of wires simultaneously connectable		Nr.	2
Conductor section	AWG/Kcmil		
	max		10
Flexible w/o lug conductor section	min	mm ²	1
	max	mm ²	6
Flexible c/w lug conductor section	min	mm ²	1
	max	mm ²	4
Flexible with insulated spade lug conductor section	min	mm ²	1
	max	mm ²	4
Power terminal protection according to IEC/EN 60529	IP20 when properly wired		
Cable stripping length	main circuit	mm	0
	command circuit	mm	0
	auxiliary circuit	mm	0
Mechanical features			
Operating position	normal allowable	Vertical plan ±30°	
Fixing	Screw / DIN rail 35mm		
Weight	g	360	
Auxiliary contact characteristics			
Thermal current I _{th}	A	10	
IEC/EN 60947-5-1 designation	A600 - Q600		
Operating current AC15	230V	A	3
	400V	A	1.9
	500V	A	1.4
Operating current DC12	24V	A	0
	48V	A	0
	60V	A	0
	125V	A	0
	220V	A	0
	600V	A	0
Operating current DC13	110V	A	1.25
	125V	A	0.55
	600V	A	0.1
Operations			
Mechanical life	cycles	2000000	
Electrical life	cycles	2000000	
Safety related data			
Performance level B10d according to EN/ISO 13489-1	rated load	cycles	200000

	mechanical load	cycles	20000000
Mirror contacts according to IEC/EN 60947-4-1			Yes
EMC compatibility			yes
Electrical characteristics			
Operating current DC13	250V	A	0.27
	440V	A	0.15
	500V	A	0.13
AC coil operating			
Rated AC voltage at 50/60Hz		V	24
AC operating voltage			
of 50/60Hz coil powered at 50Hz			
pick-up	min	%Us	80
	max	%Us	110
drop-out	min	%Us	20
	max	%Us	55
of 50/60Hz coil powered at 60Hz			
pick-up	min	%Us	85
	max	%Us	110
drop-out	min	%Us	20
	max	%Us	55
AC average coil consumption at 20°C			
of 50/60Hz coil powered at 50Hz	in-rush	VA	75
	holding	VA	9
of 50/60Hz coil powered at 60Hz	in-rush	VA	70
	holding	VA	6.5
of 60Hz coil powered at 60Hz	in-rush	VA	75
	holding	VA	9
Dissipation at holding ≤20°C 50Hz		W	2.5
DC coil operating			
DC operating voltage			
pick-up	min	%Us	0
	max	%Us	0
drop-out	min	%Us	0
	max	%Us	0
Average coil consumption ≤20°C	in-rush	W	0
	holding	W	0
Max cycles frequency			
Mechanical operation		cycles/h	3600
Operating times			
Average time for Us control			
in AC			
Closing NO	min	ms	8

		max	ms	24
Opening NO		min	ms	10
		max	ms	20
Closing NC		min	ms	14
		max	ms	28
Opening NC		min	ms	7
		max	ms	18
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in DC				
Closing NO		min	ms	0
		max	ms	0
Opening NO		min	ms	0
		max	ms	0
Closing NC		min	ms	0
		max	ms	0
Opening NC		min	ms	0
		max	ms	0

UL technical data

Rated operational voltage AC (UL) V 600

Full-load current (FLA) for three-phase AC motor

	at 480V	A	11
	at 600V	A	11

Yielded mechanical performance

for single-phase AC motor			
	110/120V	HP	1
	230V	HP	2
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for three-phase AC motor			
	200/208V	HP	5
	220/230V	HP	5
	460/480V	HP	7.5
	575/600V	HP	10

General USE

Contactor	AC current	A	28
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Auxiliary contacts	AC voltage	V	600
	AC current	A	10
	DC voltage	V	250
	DC current	A	1

Short-circuit protection fuse, 600V

High fault			
	Short circuit current	kA	100
	Fuse rating	A	30
	Fuse class		J
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Standard fault			
	Short circuit current	kA	5
	Fuse rating	A	70

Contact rating of auxiliary contacts according to UL A600 - Q600

Ambient conditions

Temperature

Operating temperature

min	°C	-50
max	°C	70

Storage temperature

min	°C	-60
max	°C	80

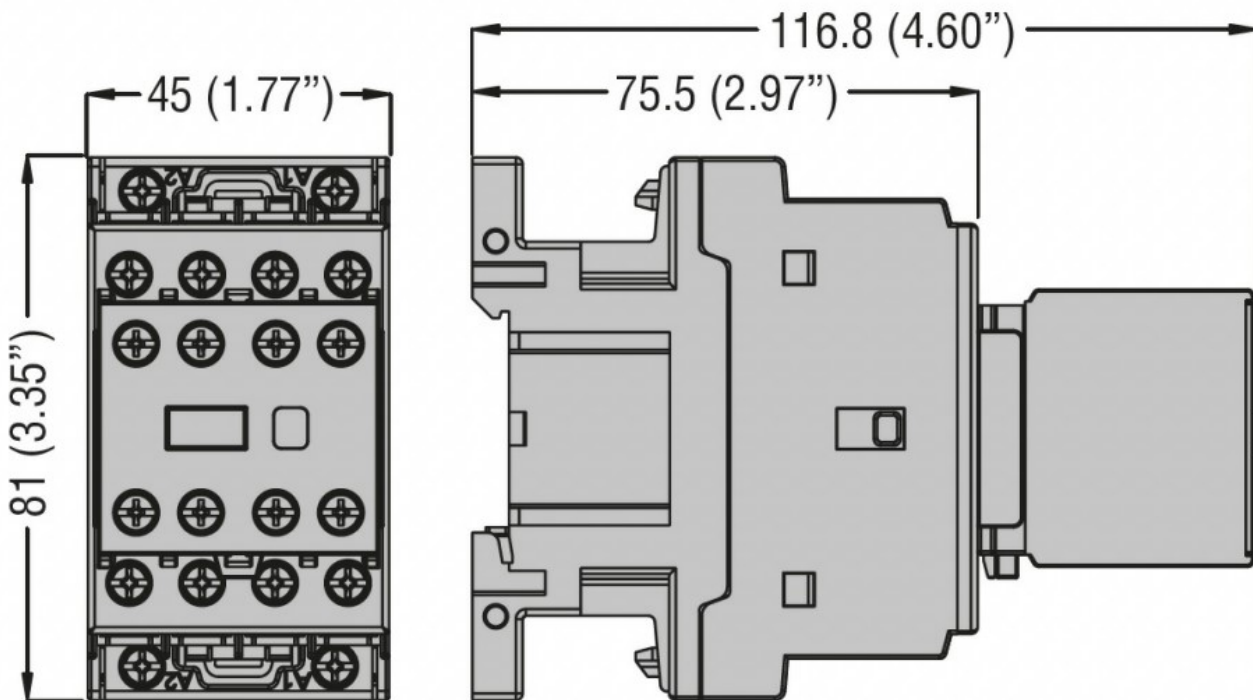
Max altitude

m	3000
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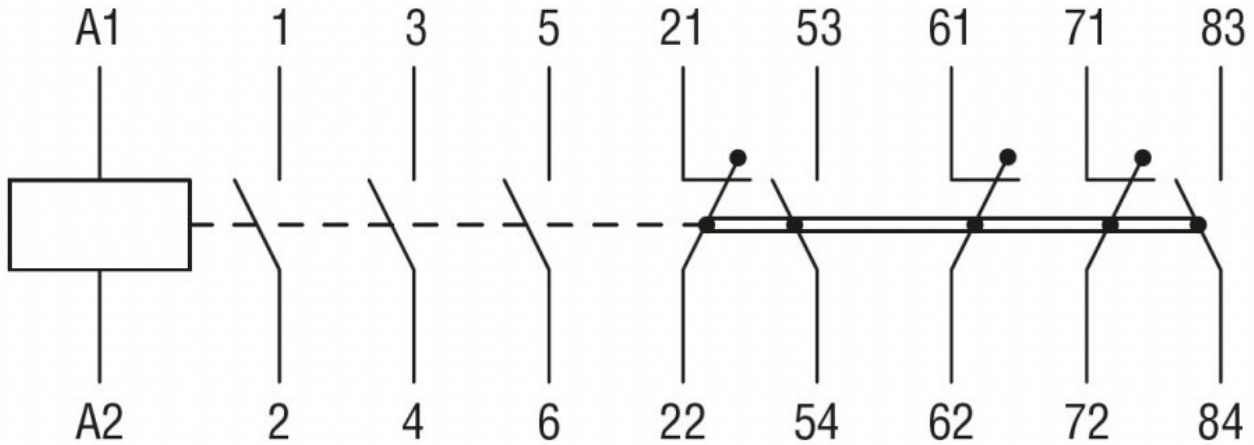
Resistance & Protection

Impact resistance	0
Vibration resistance	0
Special thermic treatments	0
Pollution degree	3
Resistance to flame (GWT)	0
Flame retardant according to UL94	0

Dimensions



Wiring diagrams



Certifications and compliance

Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN/BS 60947-1

IEC/EN/BS 60947-4-1

IEC/EN/BS 60947-5-1

UL 60947-1

UL 60947-4-1

Certificates

cULus

UL listed for USA and Canada

ETIM classification

ETIM 8.0

EC000066 -
Power contactor,
AC switching