



Product designation  
Product type designation

Power contactor  
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 <sup>2</sup> 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 <sup>2</sup> 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 <sup>2</sup> 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	$\leq 24\text{V}$
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		$\leq 24\text{V}$

	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	Ibin	0.8
	max	Ibin	0.74
Max number of wires simultaneously connectable		Nr.	2
Conductor section			
AWG/Kcmil			
	max		10
Flexible w/o lug conductor section			
	min	mm <sup>2</sup>	1
	max	mm <sup>2</sup>	6
Flexible c/w lug conductor section			
	min	mm <sup>2</sup>	1
	max	mm <sup>2</sup>	4
Flexible with insulated spade lug conductor section			
	min	mm <sup>2</sup>	1
	max	mm <sup>2</sup>	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
<b>Mechanical features</b>			
Operating position		normal allowable	Vertical plan ±30°
Fixing			Screw / DIN rail 35mm
Weight		g	354
<b>Auxiliary contact characteristics</b>			
Thermal current I <sub>th</sub>		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
<b>Operations</b>			
Mechanical life		cycles	2000000
Electrical life		cycles	2000000
<b>Safety related data</b>			
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
<b>Electrical characteristics</b>			
Operating current DC13	250V	A	0.27
	440V	A	0.15
	500V	A	0.13
<b>AC coil operating</b>			
Rated AC voltage at 50/60Hz		V	230
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
<b>DC coil operating</b>			
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
<b>Max cycles frequency</b>			
Mechanical operation		cycles/h	3600
<b>Operating times</b>			
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

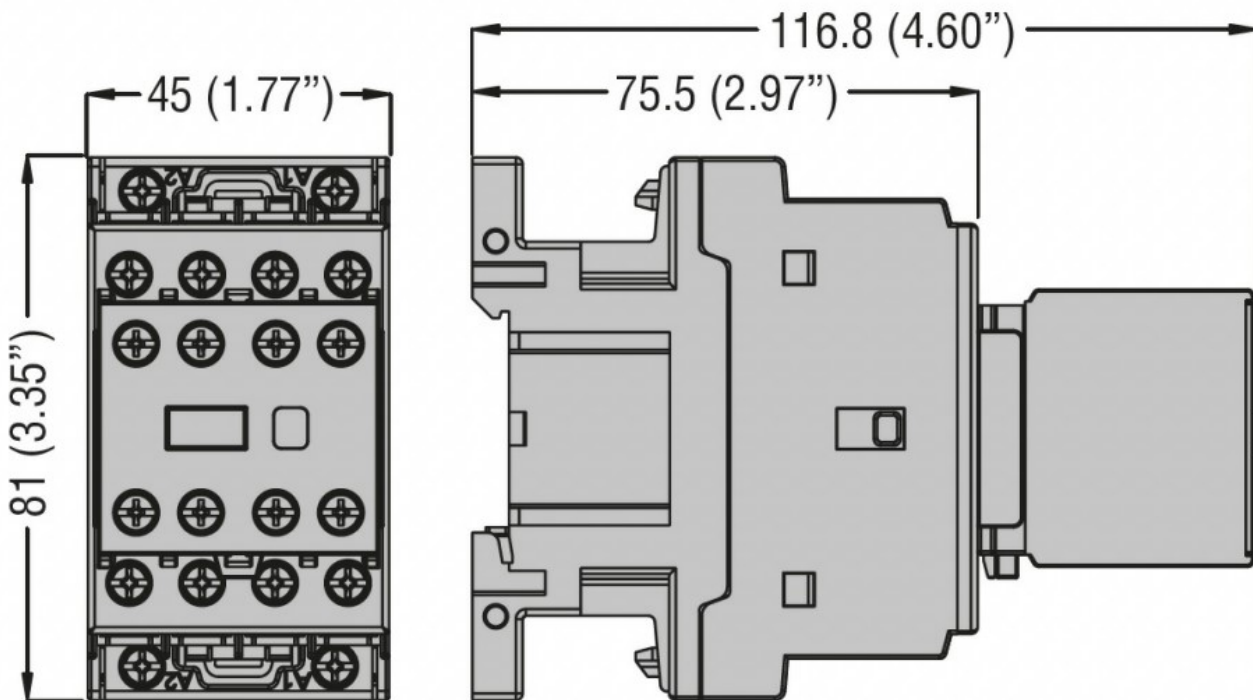
Max altitude

m	3000
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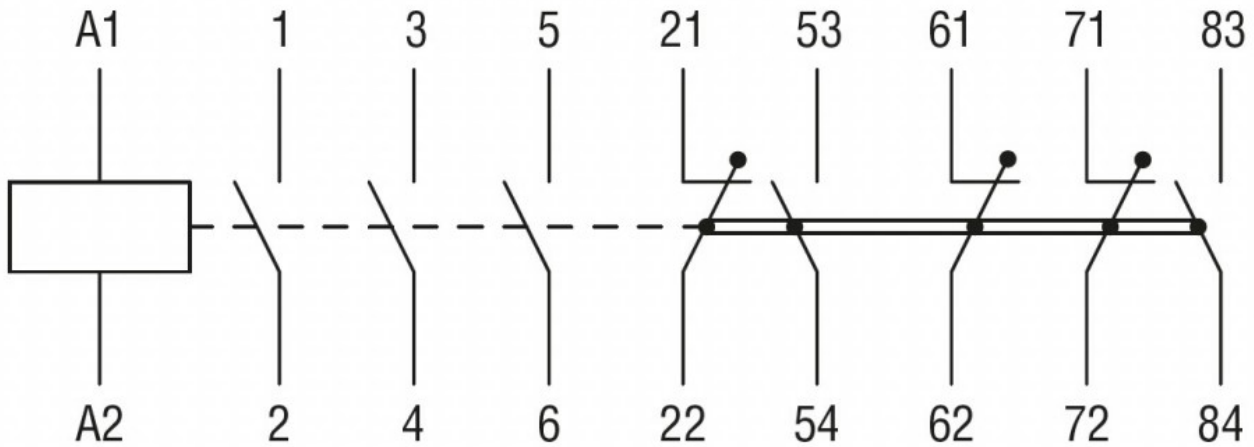
**Resistance & Protection**

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