



			Se con
Product designation			Power contactor
Product type designation			BF160
Contact characteristics			
Number of poles		Nr.	3
Rated insulation voltage Ui IEC/EN		V	1000
Rated impulse withstand voltage Uimp		kV	8
Operational frequency			
Operational modulency	min	Hz	25
	max	Hz	400
IEC Conventional free air thermal current Ith	IIIax	A	250
Operational current le		^	250
Operational current le	AC 1 (<10°C)	۸	250
	AC-1 (≤40°C)	A	250
	AC-1 (≤55°C)	A	210
	AC-1 (≤70°C)	A	180
	AC-3 (≤440V ≤55°C)	A	160
	AC-4 (400V)	A	75
Rated operational power AC-3 (T≤55°C)			
	230V	kW	45
	400V	kW	75
	415V	kW	90
	440V	kW	90
	500V	kW	110
	690V	kW	132
	1000V	kW	75
Rated operational power AC-1 (T≤40°C)			
	230V	kW	95
	400V	kW	165
	500V	kW	181
	690V	kW	284
IEC max current le in DC1 with L/R ≤ 1ms with 1 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	110
	220V	Α	_
IEC max current le in DC1 with L/R ≤ 1ms with 2 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	150
	220V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 3 poles in series			
	≤24V	Α	250
	48V	A	250
	75V	A	250
	734	77	200



	110V	Α	160
	220V	Α	150
	330V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	A	250
	110V	A	250
150	220V	Α	250
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	80
	220V	Α	_
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series			
·	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	A	120
	220V	A	90
150	220 V	<u> </u>	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series		_	
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	140
	220V	Α	120
	330V	Α	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series			
·	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	140
	220V	A	140
	330V	A	140
	460V	A	90
Short-time allowable current for 10s (IEC/EN60947-1)		Α	1280
Protection fuse			
	gG (IEC)	Α	315
	aM (IEC)	Α	200
Making capacity (RMS value)		Α	1360
Breaking capacity at voltage			
	440V	Α	1360
	500V	Α	1326
	690V	Α	1139
Resistance per pole (average value)		mΩ	0.18
Power dissipation per pole (average value)		11122	0.10
i owei dissipation per pole (average value)	141-	14/	11
	Ith	W	11
	AC3	W	4.5
Tightening torque for terminals			
	min	Nm	18
	max	Nm	18
	min	Ibin	159
	max	lbin	159



BF16000E024

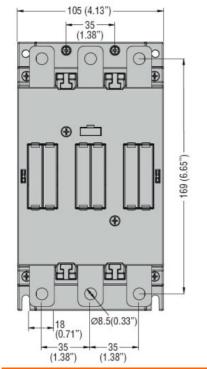
Tightoning targue for sail terminal			
Tightening torque for coil terminal	min	Nm	0.8
	max	Nm	1
Power terminal protection according to IEC/EN 60529	тих	14111	IP00
Mechanical features			11 00
Operating position			
operating position	normal		Vertical plan
	allowable		±30°
Fixing			Screw
Weight		g	3000
Operations			
Mechanical life		cycles	10000000
Electrical life		cycles	1000000
Safety related data		,	
Performance level B10d according to EN/ISO 13489-1			
ŭ	rated load	cycles	1000000
EMC compatibility			yes
AC coil operating			•
Rated AC voltage at 50/60Hz, 60Hz			
-	min	V	24
	max	V	60
AC operating voltage			
of 50/60Hz coil powered at 50Hz			
pick-up			
	min	%Us	80 Us min
	max	%Us	110 Us max
drop-out			
	max	%Us	≤70 Us min
of 50/60Hz coil powered at 60Hz			
pick-up			
	min	%Us	80 Us min
	max	%Us	110 Us max
drop-out			
	max	%Us	≤70 Us min
AC average coil consumption at 20°C			
of 50/60Hz coil powered at 50Hz			
	in-rush	VA	160230
	holding	VA	1.53.0
of 50/60Hz coil powered at 60Hz			
	in-rush	VA	160230
	holding	VA	1.53.0
of 60Hz coil powered at 60Hz		1/4	400 000
	in-rush	VA	160230
Discipation at holding <20°C FOLI-	holding	VA	1.53.0
Dissipation at holding ≤20°C 50Hz		W	1.53.0
DC coil operating			
DC rated control voltage		17	20
	min	V	20
DC enerating veltage	max	V	60
DC operating voltage			
pick-up		0/11-	0E He:-
	min	%Us	85 Us min
	max	%Us	110 Us max

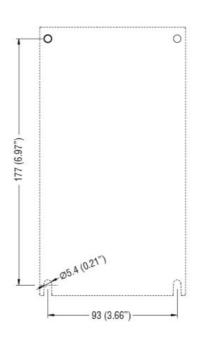


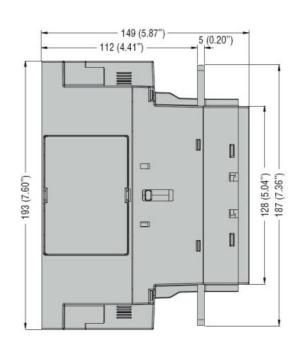


	drop-out			
		max	%Us	≤70 Us min
Average coil consum	ption ≤20°C			
		in-rush	W	160230
May avalas fraguesas		holding	W	1.53.0
Max cycles frequency Mechanical operation			cycles/h	1000
Operating times			cycles/fi	1000
Average time for Us	control			
/ tvorago timo for co v	in AC			
	Closing NO			
	ŭ	min	ms	50
		max	ms	100
	Opening NO			
		min	ms	35
		max	ms	75
UL technical data				
Yielded mechanical p				
	for three-phase AC motor	000/000/	L ID	50
		200/208V	HP	50
		220/230V 460/480V	HP HP	60 125
		575/600V	HP	150
General USE		373/000 V	1 11	130
Ochciai OOL	Contactor			
	Comación	AC current	Α	250
Short-circuit protection	on fuse, 600V			
·	High fault			
		Short circuit current	kA	100
		Fuse rating	Α	400
		Fuse class		J
	Standard fault			
		Short circuit current	kA	10
		Fuse rating	Α	400
A 1		Fuse class		RK5
Ambient conditions				
Temperature	Operating temperature			
	Operating temperature	min	°C	-40
		min max	°C	-40 70
	Storage temperature	IIIax		7.0
	Ciorage temperature	min	°C	-50
		max	°C	80
Max altitude		ax	m	3000
Resistance & Protect	tion			
Pollution degree				3
Dimensions [mm (in)]				

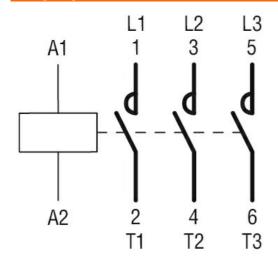
THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 160A, AC/DC COIL, 24...60VAC - 20...60VDC







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

UL 60947-1

UL 60947-4-1

Certificates

cULus

ETIM classification

ETIM 8.0





			100
Product designation			Power contactor
Product type designation			BF160
Contact characteristics			
Number of poles		Nr.	3
Rated insulation voltage Ui IEC/EN		V	1000
Rated impulse withstand voltage Uimp		kV	8
Operational frequency			
	min	Hz	25
	max	Hz	400
IEC Conventional free air thermal current Ith		Α	250
Operational current le			
	AC-1 (≤40°C)	Α	250
	AC-1 (≤55°C)	Α	210
	AC-1 (≤70°C)	Α	180
AC-	-3 (≤440V ≤55°C)	Α	160
	AC-4 (400V)	Α	75
Rated operational power AC-3 (T≤55°C)			
	230V	kW	45
	400V	kW	75
	415V	kW	90
	440V	kW	90
	500V	kW	110
	690V	kW	132
	1000V	kW	75
Rated operational power AC-1 (T≤40°C)			
	230V	kW	95
	400V	kW	165
	500V	kW	181
	690V	kW	284
IEC max current le in DC1 with L/R ≤ 1ms with 1 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	110
	220V	Α	_
IEC max current le in DC1 with L/R ≤ 1ms with 2 poles in series			
•	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	150
	220V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 3 poles in series		· · · · · · · · · · · · · · · · · · ·	
	≤24V	Α	250
	48V	A	250
	75V	A	250
		- •	·



	110V	Α	160
	220V	Α	150
	330V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series			
	≤24V	Α	250
	48V	A	250
	75V	A	250
	110V	A	250
	220V	A	
IFC may august to in DC2 DC5 with L/D < 45 may with 4 males in agrica	2201	A	250
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series	<0.41/	۸	050
	≤24V	A	250
	48V	Α	250
	75V	Α	160
	110V	Α	80
	220V	Α	
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	120
	220V	Α	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	140
	220V	Α	120
	330V	Α	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series		- , ,	
120 max carrett to in 200 200 mar 2/10 from mar 1 polec in control	≤24V	Α	250
	48V	A	250
	75V	A	160
	110V	A	140
	220V	A	140
	330V	Α	140
01 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	460V	A	90
Short-time allowable current for 10s (IEC/EN60947-1)		A	1280
Protection fuse	- :	_	
	gG (IEC)	Α	315
	aM (IEC)	A	200
Making capacity (RMS value)		A	1360
Breaking capacity at voltage			
	440V	Α	1360
	500V	Α	1326
	690V	Α	1139
Resistance per pole (average value)		mΩ	0.18
Power dissipation per pole (average value)			_
	Ith	W	11
	AC3	W	4.5
Tightening torque for terminals			
	min	Nm	18
	max	Nm	18
	min	lbin	159
	max	lbin	159
	Παλ	10111	100



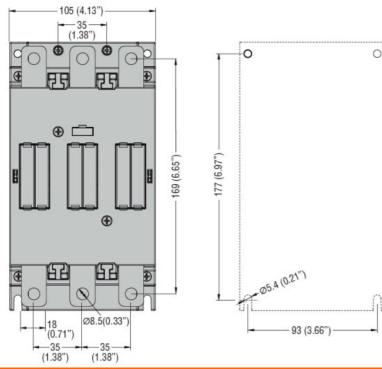
Tightening torque for c	coil terminal			
		min	Nm	0.8
		max	Nm	
	tion according to IEC/EN 60529			IP00
Mechanical features				
Operating position				
		normal		Vertical plan
		allowable		±30°
Fixing				Screw
Weight			g	3000
Operations				
Mechanical life			cycles	10000000
Electrical life			cycles	1000000
Safety related data				
	Od according to EN/ISO 13489-1			
	, and the second	rated load	cycles	1000000
EMC compatibility				yes
AC coil operating				
Rated AC voltage at 5	0/60Hz, 60Hz			
· · · · · · · · · · · · · · · · · · ·	-,	min	V	60
		max	V	130
AC operating voltage		тих	•	100
7.0 operating voltage	of 50/60Hz coil powered at 50Hz			
	pick-up			
	ріск-ир	min	%Us	80 Us min
			%Us	110 Us max
	drap out	max	%US	110 05 max
	drop-out	may	0/110	∠70 Ha min
	of FO/COLLE and recovered at COLLE	max	%Us	≤70 Us min
	of 50/60Hz coil powered at 60Hz			
	pick-up		0/11-	00 11
		min	%Us	80 Us min
	In a second	max	%Us	110 Us max
	drop-out		0/11	
		max	%Us	≤70 Us min
AC average coil consu	•			
	of 50/60Hz coil powered at 50Hz			
		in-rush	VA	160230
		holding	VA	1.53.0
	of 50/60Hz coil powered at 60Hz			
		in-rush	VA	160230
		holding	VA	1.53.0
	of 60Hz coil powered at 60Hz			
		in-rush	VA	160230
		holding	VA	1.53.0
Dissipation at holding:	≤20°C 50Hz		W	1.53.0
DC coil operating				
DC rated control voltage	ge			
`		min	V	60
		max	V	130
DC operating voltage				
	pick-up			
	k.~ ∧k	min	%Us	85 Us min
		max	%Us	110 Us max
		IIIAX	/003	110 03 max

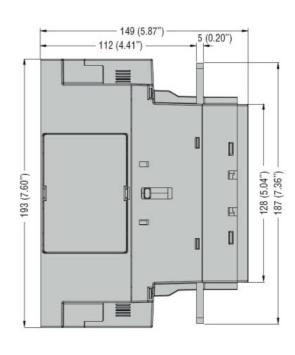




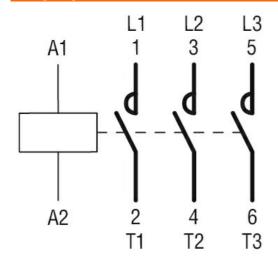
	drop-out			
	diop-out	max	%Us	≤70 Us min
Average coil consumpt	ion ≤20°C			
		in-rush	W	160230
		holding	W	1.53.0
Max cycles frequency				
Mechanical operation			cycles/h	1000
Operating times				
Average time for Us co				
	in AC			
	Closing NO	min	me	50
		max	ms ms	100
	Opening NO		1115	100
	Opening No.	min	ms	35
		max	ms	75
UL technical data				
Yielded mechanical pe	rformance			
·	for three-phase AC motor			
	·	200/208V	HP	50
		220/230V	HP	60
		460/480V	HP	125
		575/600V	HP	150
General USE	_			
	Contactor	10		050
Ob ant aims it must at a stime	f	AC current	A	250
Short-circuit protection				
	High fault	Short circuit current	kA	100
		Fuse rating	A	400
		Fuse class	^	J
	Standard fault	1 430 01433		<u> </u>
		Short circuit current	kA	10
		Fuse rating	Α	400
		Fuse class		RK5
Ambient conditions				
Temperature				
	Operating temperature			
		min	°C	-40
	-	max	°C	70
	Storage temperature		۰.	50
		min	°C	-50 80
Max altitude		max	°C	3000
Resistance & Protection	in		m	3000
Pollution degree				3
Dimensions [mm (in)]				<u> </u>

ENERGY AND AUTOMATION





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

UL 60947-1

UL 60947-4-1

Certificates

cULus

ETIM classification

ETIM 8.0





Product designation Product type designation			Power contactor BF160
Contact characteristics			
Number of poles		Nr.	3
Rated insulation voltage Ui IEC/EN		V	1000
Rated impulse withstand voltage Uimp		kV	8
Operational frequency			
	min	Hz	25
	max	Hz	400
IEC Conventional free air thermal current Ith		Α	250
Operational current le			
	AC-1 (≤40°C)	Α	250
	AC-1 (≤55°C)	Α	210
	AC-1 (≤70°C)	Α	180
	AC-3 (≤440V ≤55°C)	Α	160
	AC-4 (400V)	Α	75
Rated operational power AC-3 (T≤55°C)	0001/		
	230V	kW	45
	400V	kW	75
	415V	kW	90
	440V	kW	90
	500V	kW	110
	690V	kW	132
Rated operational power AC-1 (T≤40°C)	1000V	kW	75
Rated operational power AC-1 (1540 C)	230V	kW	95
	400V	kW	165
	500V	kW	181
	690V	kW	284
IEC max current le in DC1 with L/R ≤ 1ms with 1 poles in series	090 V	KVV	204
120 max current to in 201 with 2/1 2 mis with 1 poles in series	≤24V	Α	250
	48V	A	250
	75V	A	250
	110V	A	110
	220V	Α	_
IEC max current le in DC1 with L/R ≤ 1ms with 2 poles in series		- •	
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	150
	220V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 3 poles in series			_
	≤24V	Α	250
	48V	Α	250
	75V	Α	250



BF16000E230

	110V	Α	160
	220V	Α	150
	330V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	A	250
	110V	A	250
150	220V	Α	250
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	80
	220V	Α	_
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series			
·	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	A	120
	220V	A	90
150	220 V	<u> </u>	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series		_	
	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	140
	220V	Α	120
	330V	Α	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series			
·	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	140
	220V	A	140
	330V	A	140
	460V	A	90
Short-time allowable current for 10s (IEC/EN60947-1)		Α	1280
Protection fuse			
	gG (IEC)	Α	315
	aM (IEC)	Α	200
Making capacity (RMS value)		Α	1360
Breaking capacity at voltage			
	440V	Α	1360
	500V	Α	1326
	690V	Α	1139
Resistance per pole (average value)		mΩ	0.18
Power dissipation per pole (average value)		11122	0.10
i owei dissipation per pole (average value)	141-	14/	11
	Ith	W	11
	AC3	W	4.5
Tightening torque for terminals			
	min	Nm	18
	max	Nm	18
	min	Ibin	159
	max	lbin	159



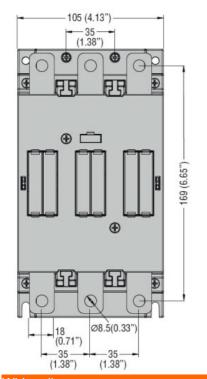
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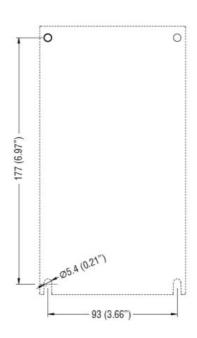
Tightening torque for coil terminal min	Tightoning torque for o	oil terminal			
Power terminal protection according to IEC/EN 60529 1000000 10000000 100000000000000	rightening torque for o	on terminal	min	Nlm	0.0
Power terminal protection according to IEC/EN 60529 Power terminal protection according to IEC/EN 60529 Power at the protection according to IEC/EN 60529 Power at the protection and allowable Power at the protection and allowable Power at the protection allowable Power at the pr					
Mechanical features Operating position normal allowable Vertical plan ±30° ±30° ±30° ±30° ±30° ±30° ±30° ±30°	Dower terminal protect	tion according to IEC/EN 60530	IIIax	INIII	
Operating position normal allowable 4 230°		lion according to IEC/EN 60329			IFUU
Normal					
Series	Operating position		normal		Vertical plan
Screw Weight g 3000 Operations g 3000 Operations Screw Growth Grow					-
Weight	Eiving		allowable		
Operations				~	
Mechanical life				g	3000
Electrical life	•			ovoloo	1000000
Safety related data Performance level B10d according to EN/ISO 13489-1 rated load cycles 1000000 EMC compatibility yes AC coil operating Rated AC voltage at 50/60Hz, 60Hz min V 100 max V 250 AC operating voltage of 50/60Hz coil powered at 50Hz pick-up min max %Us \$70 Us min \$10 Us max \$10 Us max				-	
Performance level B10d according to EN/ISO 13489-1 EMC compatibility AC coil operating Rated AC voltage at 50/60Hz, 60Hz Rated AC voltage at 50/60Hz, 60Hz Rated AC voltage at 50/60Hz coil powered at 50Hz pick-up AC operating voltage of 50/60Hz coil powered at 60Hz pick-up Pick-up AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz of 50/60Hz coil powered at 60Hz pick-up AC average coil consumption at 20°C of 50/60Hz coil powered at 60Hz of 50/60Hz coil powered at 60Hz of 50/60Hz coil powered at 50Hz AC average coil consumption at 20°C of 50/60Hz coil powered at 60Hz of 50/60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz C coil operating DC rated control voltage pick-up min V 100 max V 250 DC operating voltage pick-up min V 100 max V 250 DC operating voltage pick-up min V 100 max V 250				cycles	1000000
Material	•	Nd according to FN/ICO 42400 4			
EMC compatibility yes AC coll operating Rated AC voltage at 50/60Hz, 60Hz AC operating voltage of 50/60Hz coil powered at 50Hz pick-up min	Performance level B10	od according to EN/ISO 13489-1	لمحمل المحفود	مامرم	4000000
AC coil operating Rated AC voltage at 50/60Hz, 60Hz min V 100 max V 250 AC operating voltage of 50/60Hz coil powered at 50Hz pick-up min max %Us 80 Us min max %Us 110 Us max drop-out max %Us 570 Us min of 50/60Hz coil powered at 60Hz pick-up min max %Us 80 Us min max drop-out max %Us 570 Us min AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush va 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz in-rush holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating min V 100 max V 250 DC operating voltage min V 250 min V 250 100 max V 250	TMO serve at la lite.		rated load	cycles	
Rated AC voltage at 50/60Hz, 60Hz min V 100 max V 250 AC operating voltage					yes
Min V 100		2/6017 6017			
AC operating voltage of 50/60Hz coil powered at 50Hz pick-up min wx wus 80 Us min max wus 110 Us max drop-out of 50/60Hz coil powered at 60Hz pick-up min wx wus 270 Us min max wus 110 Us max drop-out min wx wus 110 Us max drop-out max wus 270 Us min AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 Dissipation at holding ≤20°C 50Hz DC coil operating DC rated control voltage pick-up min v 100 max v 250 B5 Us min	Rated AC voltage at 50	J/0UПZ, 0UПZ	•	17	400
AC operating voltage of 50/60Hz coil powered at 50Hz pick-up drop-out min					
of 50/60Hz coil powered at 50Hz pick-up min Mus 80 Us min max Mus 110 Us max drop-out max Mus 570 Us min of 50/60Hz coil powered at 60Hz pick-up min Mus 80 Us min max Mus 570 Us min max Mus 110 Us max max Mus 110 Us max drop-out min max Mus 110 Us max drop-out max Mus 110 Us max max Mus 570 Us min max Mus 570 Us min AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush VA 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage pick-up min V 100 max V 250 DC operating Va 55 Us min min Mus 85 Us min min Mus 80 Us min min max min min min min max min min min min min max min min min min min min min min min max min	A O (1)		max	V	250
Pick-up min %Us 80 Us min max %Us 110 Us max drop-out max %Us ≤70 Us min max max %Us ≤70 Us min min %Us ≤70 Us min wide min %Us ≤70 Us min min wide w	AC operating voltage	(50/0011 11 1 5011			
Min Mus		•			
drop-out max %Us 110 Us max max max %Us ≤70 Us min max ma		ріск-ир	•	0/11-	00.11
drop-out					
Max Mus ≤70 Us min		deser and	max	%Us	110 Us max
of 50/60Hz coil powered at 60Hz pick-up min %Us 80 Us min max %Us 110 Us max drop-out max %Us ≤70 Us min AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush VA 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz DC coil operating DC rated control voltage pick-up min V 100 max V 250 DC operating voltage pick-up		arop-out		0/11-	470 I I
Pick-up min %Us 80 Us min max %Us 110 Us max		of 50/0011= and an only	max	%US	≤/U US Min
min max min		•			
Max Mus 110 Us max		ріск-ир		0/11-	00.11
AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush vA 160230 holding vA 1.53.0 of 50/60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 holding vA 1.53.0 of 60Hz coil powered at 60Hz in-rush vA 160230 in-rush vA 160					
Max %Us ≤70 Us min		draw acut	max	%US	110 US max
AC average coil consumption at 20°C of 50/60Hz coil powered at 50Hz in-rush VA 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min		drop-out		0/116	<70 He main
of 50/60Hz coil powered at 50Hz in-rush VA 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz	AO		max	%US	≤/U US Min
in-rush VA 160230 holding VA 1.53.0 of 50/60Hz coil powered at 60Hz	AC average coll consu	•			
holding		of 50/60Hz coil powered at 50Hz	in made	1/4	400 000
of 50/60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min					
in-rush		of FO/COLLE coil powered at COLLE	noluing	VA	1.53.0
holding VA 1.53.0 of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min		of 50/60Hz coil powered at 60Hz	in much	١/٨	160 220
of 60Hz coil powered at 60Hz in-rush VA 160230 holding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min					
in-rush		of COLIT poil powered at COLIT	noluling	VA	1.55.0
bolding VA 1.53.0 Dissipation at holding ≤20°C 50Hz W 1.53.0 DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min		or ouriz coil powered at ouriz	in much	١/٨	160 220
Dissipation at holding ≤20°C 50Hz DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min					
DC coil operating DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min	Discipation at holding	<20°C EU∏-	Holding		
DC rated control voltage min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min		<u>-20 0 001 12</u>		V V	1.00.0
min V 100 max V 250 DC operating voltage pick-up min %Us 85 Us min		10			
DC operating voltage pick-up max V 250 max V 250 min %Us 85 Us min	Do Taled Control voltag	y ∽	min	\/	100
DC operating voltage pick-up min %Us 85 Us min					
pick-up min %Us 85 Us min	DC operating voltage		max	V	200
min %Us 85 Us min	Do operating voltage	niak un			
		ріск-ир		0/11-	OE I lo min
max %us ituus max					
			IIIdX	/0US	i iu us iliax

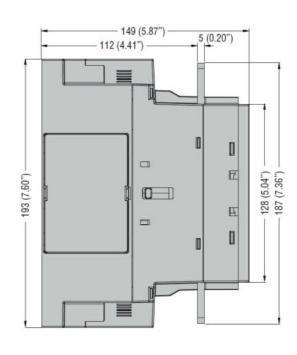


	drop-out			
		max	%Us	≤70 Us min
Average coil consum	ption ≤20°C			
		in-rush	W	160230
May avalas fraguesas		holding	W	1.53.0
Max cycles frequency Mechanical operation			cycles/h	1000
Operating times			cycles/fi	1000
Average time for Us	control			
/ tvorago timo for co v	in AC			
	Closing NO			
	ŭ	min	ms	50
		max	ms	100
	Opening NO			
		min	ms	35
		max	ms	75
UL technical data				
Yielded mechanical p				
	for three-phase AC motor	000/000/	L ID	50
		200/208V	HP	50
		220/230V 460/480V	HP HP	60 125
		575/600V	HP	150
General USE		373/000 V	1 11	130
Ochciai OOL	Contactor			
	Comación	AC current	Α	250
Short-circuit protection	on fuse, 600V			
·	High fault			
		Short circuit current	kA	100
		Fuse rating	Α	400
		Fuse class		J
	Standard fault			
		Short circuit current	kA	10
		Fuse rating	Α	400
A 1		Fuse class		RK5
Ambient conditions				
Temperature	Operating temperature			
	Operating temperature	min	°C	-40
		min max	°C	-40 70
	Storage temperature	IIIax		7.0
	Ciorage temperature	min	°C	-50
		max	°C	80
Max altitude		ax	m	3000
Resistance & Protect	tion			
Pollution degree				3
Dimensions [mm (in)]				

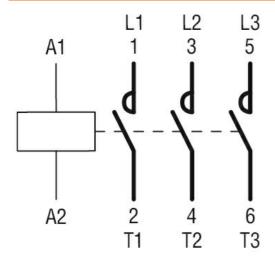
THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 160A, AC/DC COIL, 100...250VAC/DC







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

UL 60947-1

UL 60947-4-1

Certificates

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ETIM classification

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THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 160A, AC/DC COIL, 250... 500VAC/DC **ENERGY AND AUTOMATION**



Product designation			Power contactor
Product type designation			BF160
Contact characteristics			
Number of poles		Nr.	3
Rated insulation voltage Ui IEC/EN		V	1000
Rated impulse withstand voltage Uimp		kV	8
Operational frequency			
	min	Hz	25
	max	Hz	400
IEC Conventional free air thermal current Ith		Α	250
Operational current le			
	AC-1 (≤40°C)	Α	250
	AC-1 (≤55°C)	Α	210
	AC-1 (≤70°C)	Α	180
	AC-3 (≤440V ≤55°C)	Α	160
	AC-4 (400V)	Α	75
Rated operational power AC-3 (T≤55°C)			
	230V	kW	45
	400V	kW	75
	415V	kW	90
	440V	kW	90
	500V	kW	110
	690V	kW	132
	1000V	kW	75
Rated operational power AC-1 (T≤40°C)			
	230V	kW	95
	400V	kW	165
	500V	kW	181
	690V	kW	284
IEC max current le in DC1 with L/R ≤ 1ms with 1 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	110
	220V	Α	_
IEC max current le in DC1 with L/R ≤ 1ms with 2 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	150
	220V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 3 poles in series			
	≤24V	Α	250
	48V	Α	250
	75V	Α	250



THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 160A, AC/DC COIL, 250... 500VAC/DC **ENERGY AND AUTOMATION**

	110V	Α	160
	220V	Α	150
	330V	Α	130
IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series			
· ·	≤24V	Α	250
	48V	Α	250
	75V	Α	250
	110V	Α	250
	220V	Α	250
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series			
·	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	80
	220V	Α	_
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series	<u> </u>		
μ	≤24V	Α	250
	48V	Α	250
	75V	Α	160
	110V	Α	120
	220V	Α	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series	2201	- / (
TEO MAX GUITOR TO IN BOO BOO WILL ETY = TO HIS WILL O POICE IN SCIECE	≤24V	Α	250
	48V	A	250
	75V	A	160
	110V	A	140
	220V	A	120
	330V	A	90
IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series	330 V		90
TEO MAX current le in 600-600 with E/N 3 10m3 with 4 poles in series	≤24V	۸	250
	≥24 V 48 V	A A	250
	75V	A	160
	110V	A	140
	220V		140
	330V	A	140
	460V	A	90
Chart time allowable augrent for 100 (IEC/ENCO047.1)	400 V	A A	
Short-time allowable current for 10s (IEC/EN60947-1)		A	1280
Protection fuse	~C (IFO)	۸	245
	gG (IEC)	A	315
Making canacity (DMC value)	aM (IEC)	A	200
Making capacity (RMS value)		Α	1360
Breaking capacity at voltage	4.637		1000
	440V	A	1360
	500V	A	1326
Decide to the control of the control	690V	A	1139
Resistance per pole (average value)		mΩ	0.18
Power dissipation per pole (average value)			
	Ith	W	11
	AC3	W	4.5
Tightening torque for terminals			
	min	Nm	18
	max	Nm	18
	min	lbin	159
	max	Ibin	159



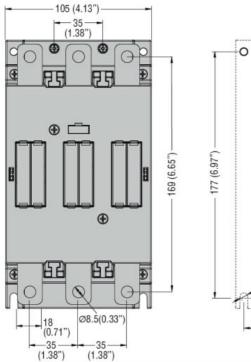
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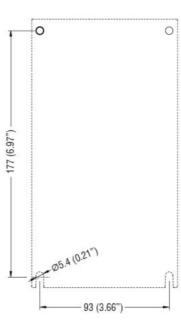
Tightening torque for co	oil terminal			
rigitioning torque for o	on terminal	min	Nm	0.8
		max	Nm	1
Power terminal protect	ion according to IEC/EN 60529			IP00
Mechanical features				
Operating position				
		normal		Vertical plan
		allowable		±30°
Fixing				Screw
Weight			g	3000
Operations				
Mechanical life			cycles	10000000
Electrical life			cycles	1000000
Safety related data				
Performance level B10	d according to EN/ISO 13489-1			
		rated load	cycles	1000000
EMC compatibility				yes
AC coil operating	2/2011 2011			
Rated AC voltage at 50	0/60Hz, 60Hz			
		min	V	250
10 11		max	V	500
AC operating voltage	of 50/001 le coil a comme d of 501 le			
	of 50/60Hz coil powered at 50Hz			
	pick-up	min	%Us	80 Us min
		min	%Us %Us	110 Us max
	drop-out	max	/005	110 05 max
	drop-out	max	%Us	≤70 Us min
	of 50/60Hz coil powered at 60Hz	Пах	7000	
	pick-up			
	p. 5.0	min	%Us	80 Us min
		max	%Us	110 Us max
	drop-out			
		max	%Us	≤70 Us min
AC average coil consu	mption at 20°C			
	of 50/60Hz coil powered at 50Hz			
		in-rush	VA	160230
		holding	VA	1.53.0
	of 50/60Hz coil powered at 60Hz			
		in-rush	VA	160230
		holding	VA	1.53.0
	of 60Hz coil powered at 60Hz			400 000
		in-rush	VA	160230
Dissinction at holding	20°C 50U-	holding	VA W	1.53.0
Dissipation at holding some DC coil operating	≥∠∪ ∪ JUI I∠ 		VV	1.03.0
DC rated control voltage				
Po rated control voltag	y c	min	V	250
		max	V	500
DC operating voltage		IIIdX	v	
Do oporating voltage	pick-up			
	p.o up	min	%Us	85 Us min
		max	%Us	110 Us max

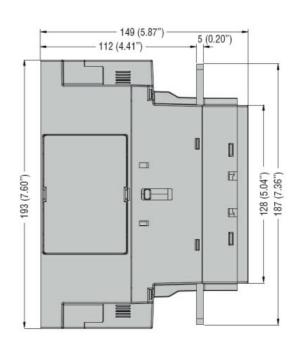


dr	op-out			
uit	op-out	max	%Us	≤70 Us min
Average coil consumption	≤20°C			
		in-rush	W	160230
		holding	W	1.53.0
Max cycles frequency				
Mechanical operation			cycles/h	1000
Operating times				
Average time for Us contro				
in .	AC			
	Closing NO			
		min	ms	50
	On online NO	max	ms	100
	Opening NO	min	me	35
		max	ms ms	75
UL technical data		IIIdX	1110	10
Yielded mechanical perform	mance			
· · · · · · · · · · · · · · · · · · ·	three-phase AC motor			
10.	and phase / to meter	200/208V	HP	50
		220/230V	HP	60
		460/480V	HP	125
		575/600V	HP	150
General USE				
Co	ontactor			
		AC current	Α	250
Short-circuit protection fus	e, 600V			
Hi	gh fault			
		Short circuit current	kA	100
		Fuse rating	Α	400
_		Fuse class		J
Sta	andard fault	01		4.0
		Short circuit current	kA ^	10
		Fuse rating Fuse class	Α	400 RK5
Ambient conditions		ruse class		KNO
Temperature				
-	perating temperature			
O,	Jordania Comporatoro	min	°C	-40
		max	°C	70
Sto	orage temperature			
	•	min	°C	-50
		max	°C	80
Max altitude			m	3000
Resistance & Protection				
Pollution degree				3
Dimensions [mm (in)]				

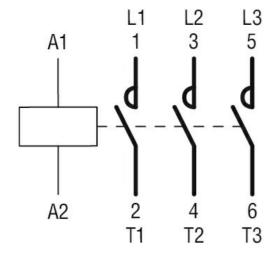
ENERGY AND AUTOMATION







Wiring diagrams



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