
















EMC filters

Selector guide

Date: January 2006



















1-line filters (feedthrough components)

Type	Dia- meter mm	New	Rated current (A)	Rated voltage (V AC)	Rated capacitance (μ F)	Terminal type	Insertion loss in the frequency range (Hz)			Page
							10 ⁵	10 ⁶	10 ⁷	
Feedthrough capacitors										
B85121A*+160	16	●	16	75 ... 440	0.00125 ... 1.0					154
B85121A*+250	20	●	25	75 ... 440	0.01 ... 1.0	 				156
B85111A*B500	24	●	50	250	0.05					158
B85121A*A250 B85121A*A750	30	●	25, 75	250	0.1 ... 1.0					159
B85121A*A630, A101, A201	55	●	63 ... 200	250	0.5 ... 4.7					160
Feedthrough filters										
B85321A*+160	16	●	16	250	2 × 0.0025	  				163
B85321A*+160	20	●	25	250, 500	2 × 0.0025	 				165
B85321A*A250 B85321A*A750	30	●	25, 75	250	2 × 0.1 ... 2 × 1.0					167
B85321A*A630, A101 ... A501	55	●	63 ... 500	250	2 × 0.5 ... 2 × 4.7					168

Legend

- Terminal type:  Tab connectors
 Axial leads
 Soldering tags
 Threaded studs

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2-line filters







Type	New	Rated current (A)	Rated voltage (V)	Line connection	Design	Terminal type	Insertion loss in the frequency range (Hz)			Page
							10 ⁵	10 ⁶	10 ⁷	
SIFI B84111F B84112G B84113H	●	3 ... 36	250 AC/DC	TT/TN	C	 				174
SIFI B84111A ... B84115E		1 ... 20	250 AC/DC	TT/TN	C P	  				187
B84142A*R000		10 ... 60	250 AC/DC	TT/TN	C					218
B84142A*G075	●	60								
B84142B*R000		8 ... 25	250 AC/DC	TT/TN	C					225
B84142A*R122	●	8 ... 180	300 AC/DC	TT/TN	C					229
B84142A*R123	●	12 ... 100	520 AC/DC	TT/TN	C					238
B84142A*S002		250 ... 1000	750 DC	—	C					244
B84142A*S003			1000 DC							
B84142A*S018			2000 DC							
B84102C		0.5 ... 4	250 AC/DC	TT/TN	C					250
B84102K		1 ... 6	250 AC/DC	TT/TN	C					253
B84103		1 ... 6	250 AC	TT/TN	C					256
B84110A		0.5 ... 6	250 AC/DC	TT/TN	P					260
B84110B		1.4	250 AC/DC	TT/TN	P					264
B84299K002*		10, 25	250 AC/DC	TT/TN	RF					2
B84299K006*		2 ... 36	250 AC/DC	TT/TN	C					272

Legend














Design:

- C Compact filter
- RF Shielded metal case
- P PCB filter

Terminal type:

-  Tab connectors
-  Litz wires
-  Terminal blocks
-  Busbars
-  Pins
-  IEC connectors
-  Threaded studs

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3-line filters

Type	New	Rated current (A)	Rated voltage (V)	Line connection	Design	Terminal type	Insertion loss in the frequency range (Hz)			Page
							10 ⁵	10 ⁶	10 ⁷	
B84143A*R105	●	8 ... 150	520 AC	TT/TN	B					283
B84143A*R000	*	8 ... 180	480 AC	TT/TN	C					293
B84143A*R206		6 ... 25	480 AC	TT/TN	FP	 				300
B84143B*R000		8 ... 80	440 AC	TT/TN	C					305
B84143G*R110	*	8 ... 220	520 AC	TT/TN	B	 				311
B84143B*R110	*	8 ... 200	520 AC	TT/TN	B	 				318
B84143B*S080	●	180 ...	520 AC	TT/TN	C					327
B84143B*S081	●	1600	760 AC							
B84143B*S020	*	150 ...	530 AC	TT/TN	C					335
B84143B*S021		2500	760 AC							
B84143B*S024			690 AC	IT						
B84143A*R021		25 ... 180	760 AC	TT/TN	C					345
B84143V*R027 Sine-wave filters		6 ... 35	440 AC		C					351
EMC sine-wave filters		On request. For details see Chapter "Application notes", page 123.								












* = Rated voltage increased

Legend

Design: C Compact filter
 B Book-size filter
 FP Footprint filter

Terminal type:  Litz wires
 Terminal blocks
 Busbars

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Selector guide
4-line filters

Type	New	Rated current (A)	Rated voltage (V)	Number of lines	Line connection	Design	Terminal type	Insertion loss in the frequency range (Hz)			Page
								10 ⁵	10 ⁶	10 ⁷	
B84144A*R120	●	8 ... 200	520 AC	3 + N	TT/TN	C					357
B84144B*S120 B84144B*S121	●	250 ... 600	530 AC	3 + N	TT/TN	C					365
B84144A*R000 B84144G*S000		16 ... 1600	440 AC	3 + N	TT/TN	C	 				370
B84108		10, 20	440 AC	3 + N	TT/TN	C					382
B84131		6 ... 125	440 AC	3 + N	TT/TN	C	 				385
B84299K003*		6 ... 75	440 AC	3 + N	TT/TN	RF					392
B84299K005*		6 ... 25	440 AC	3 + N	TT/TN	C					400
B84134A B84134B		25 ... 50	440 AC	3 + N	TT/TN	RF					403
B84134F		12	440 AC	3 + N	TT/TN	C					409

Legend






Design: C Compact filter
RF Shielded metal case

Terminal type:  Tab connectors
 Threaded studs
 Terminal blocks
 Busbars

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Customer-specific filters

Type	Rated current (A)	Rated voltage (V)	Number of lines	Line connection	Design	Terminal type	Insertion loss in the frequency range (Hz)			Page
							10 ⁵	10 ⁶	10 ⁷	
For base stations B84132-MBS	16 ... 150	250 AC/DC	2	TT/TN	S					415
For base stations B84134-MBS	20, 60	440 AC	3 + N	TT/TN	S					418
For converters with Active Front End B84143-AFE	65	440 AC	3	TT/TN	B					421
For power line communication B84131-PLC	63	440 AC	3 + N	TT/TN	S					424
Sine-wave filters for traction applications B84143-TRAC	200 ... 500	400 ... 2100 AC			S					426


Legend

Design: B Book-size filter
S Special designs

Terminal type:  Litz wires
 Threaded studs
 Terminal blocks
 Busbars

Selector guide for converter filters

According to our experience, the filters listed below have been proved and tested in practice and by EMC measurements in frequency converter applications. However, the following points must always be taken into consideration:

-  When selecting a filter, it is mandatory to observe the rated data of the converter (such as its rated input current, rated voltage, harmonic content etc.) as well as the derating instructions in Chapters 9 and 10.
- Compliance with EMC regulations in each individual case must be ensured by application-related measurements.
- Ensure correct installation of the filters and take additional useful measures that help to meet the EMC Directive requirements. In this context, refer to the Chapter entitled “Applications notes”.

2-line filters (250 V AC) for frequency converters for electric drives

Motor power (1 AC 230 V)	Recommended filters for suppression in accordance with	
	EN 55011, class A EN 61800-3 ¹⁾ , category C2	EN 55011, class B EN 61800-3 ¹⁾ , category C1
0.55 kW	B84142A0010R000	B84142B0008R000
0.75 kW	B84142A0010R000	B84142B0008R000
1.1 kW	B84142A0020R000	B84142B0012R000
1.5 kW	B84142A0020R000	B84142B0016R000
2.2 kW	B84142A0020R000	B84142B0025R000
3.0 kW	B84142A0030R000	

3-line filters (440 V AC) for frequency converters for electric drives (examples)

Motor power (3 AC 400 V)	Recommended filters for suppression in accordance with	
	EN 55011, class A EN 61800-3 ¹⁾ , category C2	EN 55011, class B EN 61800-3 ¹⁾ , category C1
1.5 kW	B84143A0008R000	B84143B0008R000
	B84143A0008R105	B84143B0008R110
2.2 kW	B84143A0008R000	B84143B0008R000
	B84143A0008R105	B84143B0008R110
3.0 kW	B84143A0012R000	B84143B0012R000
	B84143A0016R105	B84143B0016R110
4.0 kW	B84143A0012R000	B84143B0012R000
	B84143A0016R105	B84143B0016R110
5.5 kW	B84143A0016R000	B84143B0016R000
	B84143A0016R105	B84143B0016R110
7.5 kW	B84143A0025R000	B84143B0025R000
	B84143A0025R105	B84143B0025R110

1) Table 14 from EN 61800-3, edition 2004

EMC filters
Selector guide

Motor power (3 AC 400 V)	Recommended filters for suppression in accordance with	
	EN 55011, class A EN 61800-3 ¹⁾ , category C2	EN 55011, class B EN 61800-3 ¹⁾ , category C1
11 kW	B84143A0036R000 B84143A0036R105	B84143B0036R000 B84143B0036R110
15 kW	B84143A0036R000 B84143A0036R105	B84143B0036-R000 B84143B0036-R110
18.5 kW	B84143A0050R000 B84143A0050R105	B84143B0050-R000 B84143B0050-R110
22 kW	B84143A0050R000 B84143A0050R105	B84143B0050R000 B84143B0050R110
30 kW	B84143A0080R000 B84143A0066R105	B84143B0080R000 B84143B0066R110
37 kW	B84143A0080R000 B84143A0090R105	B84143B0080R000 B84143B0090R110
45 kW	B84143A0120R000 B84143A0120R105	B84143B0120R110
55 kW	B84143A0150R000 B84143A0150R105	B84143B0150R110
75 kW	B84143A0150R000 B84143A0150R105	B84143B0150R110
90 kW	B84143A0180R000 B84143B0180S080 B84143G0220R110	B84143B0200R110
110 kW	B84143B0250S020 B84143B0250S080 B84143G0220R110	
132 kW	B84143B0250S020 B84143B0250S080	
160 kW	B84143B0320S020 B84143B0320S080	
200 kW	B84143B0400S020 B84143B0400S080	
250 kW	B84143B0600S020 B84143B0600S080	
315 kW	B84143B0600S020 B84143B0600S080	
400 kW	B84143B1000S020 B84143B1000S080	

1) Table 14 from EN 61800-3, edition 2004

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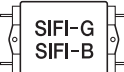
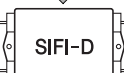
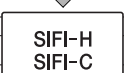

Motor power (3 AC 400 V)	Recommended filters for suppression in accordance with	
	EN 55011, class A EN 61800-3 ¹⁾ , category C2	EN 55011, class B EN 61800-3 ¹⁾ , category C1
500 kW	B84143B1000S020 B84143B1000S080	
630 kW	B84143B1600S020 B84143B1600S080	
710 kW	B84143B1600S020 B84143B1600S080	
900 kW	B84143B1600S020 B84143B1600S080	
1100 kW	B84143B2500S020	
1300 kW	B84143B2500S020	
1500 kW	B84143B2500S020	

1) Table 14 from EN 61800-3, edition 2004

EMC filters

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Selector guide for SIFI EMC filters

Field of application	Interference suppression	Increasing insertion loss	Limit class (EN 55011)	Immunity	Type	Page
Office machines	with linear power supplies			Normal requirements (f > 1 MHz)	B84111F	174
					B84111A	187
Household appliances	with commutator motors			High requirements (f > 1 MHz)	B84112G	176
	with secondary switch-mode power supplies				B84112B	193
DP systems			A	Like SIFI G/B, additional symmetrical insertion loss in range 0.1 ... 0.5 MHz	B84114D	205
µp systems	with transistor or thyristor circuits					
Electrical tools						
Optical devices	with primary switch-mode power supplies					
			B	Very high requirements (f > 0.01 ... 100 MHz)	B84115E	212

SIFI-F, G and H are low-cost variants with an extended current range.