



Single-Phase Filters FN 2070

Multi-stage Performance EMI Filter

SCHAFFNER
energy efficiency and reliability



- Rated currents from 1 to 36A
- High differential and common-mode attenuation
- High frequency attenuation
- Optional medical versions (B type)
- Optional safety versions (A type)

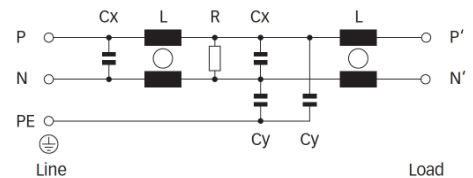
Approvals



Technical specifications

Maximum continuous operating voltage:	250VAC, 50/60Hz
Operating frequency:	dc to 400Hz
Rated currents:	1 to 36 A @ 40°C max.
High potential test voltage:	P -> PE 2000VAC for 2 sec P -> PE 2500VAC for 2 sec (B types) P -> N 1100VDC for 2 sec
Temperature range (operation and storage):	-25°C to +100°C (25/100/21)
Flammability corresponding to:	UL 94V-2 or better
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 40°C/230V (Mil-HB-217F):	1,550,000 hours 1,600,000 hours (B types)

Typical electrical schematic






Features and benefits

- FN 2070 two-stage filters are designed for easy and fast chassis mounting.
- FN 2070 filters are also available as B versions without Y-capacitors for medical applications as well as A version with low capacitance for safety critical applications with necessity for low leakage currents.
- All filters provide a high conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- FN 2070 two-stage filters are designed for high frequency attenuation.
- FN 2070 filters are also available as single-stage filters (FN 2020 series).
- Various terminal options allow you to select the desired connection style.

Typical applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Building automation
- Industrial applications
- Machinery
- Medical equipment
- Electronic data processing equipment
- Office automation and datacom equipment
- Various noisy applications requiring good filter performance

Filter selection table

Filter*	Rated current @ 40°C (25°C)	Leakage current** @ 230VAC/50Hz	Inductance L	Capacitance Cx Cy		Resistance R	Input/Output connections			Weight
	[A]	[mA]	[mH]	[μF]	[nF]	[kΩ]				[g]
FN 2070-1-..	1 (1.2)	0.734	22	0.33	4.7	1000	-06	-07		190
FN 2070-3-..	3 (3.5)	0.734	9.8	0.47	4.7	470	-06	-07		250
FN 2070-6-..	6 (6.9)	0.734	7.8	1	4.7	220	-06	-07		450
FN 2070-10-..	10 (11.5)	0.734	4.5	1	4.7	220	-06	-07		670
FN 2070-12-..	12 (13.8)	0.734	3.25	1	4.7	220	-06	-07		670
FN 2070-16-..	16 (18.4)	0.734	2.8	1	4.7	220	-06	-07	-08	1000
FN 2070-25-08	25 (28.8)	0.734	2	2.2	4.7	220			-08	760
FN 2070-36-08	36 (41.4)	0.867	1.23	2.2	4.7	220			-08	790
FN 2070A-1-..	1 (1.2)	0.074	22	0.33	0.47	1000	-06	-07		190
FN 2070A-3-..	3 (3.5)	0.074	9.8	0.47	0.47	470	-06	-07		250
FN 2070A-6-..	6 (6.9)	0.074	7.8	1	0.47	220	-06	-07		450
FN 2070A-10-..	10 (11.5)	0.074	4.5	1	0.47	220	-06	-07		670
FN 2070A-12-..	12 (13.8)	0.074	3.25	1	0.47	220	-06	-07		670
FN 2070A-16-..	16 (18.4)	0.074	2.8	1	0.47	220	-06	-07	-08	1000
FN 2070A-25-08	25 (28.8)	0.074	2	2.2	0.47	220			-08	760
FN 2070A-36-08	36 (41.4)	0.074	1.23	2.2	0.47	220			-08	790
FN 2070B-1-..	1 (1.2)	0.002	22	0.33		1000	-06	-07		190
FN 2070B-3-..	3 (3.5)	0.002	9.8	0.47		470	-06	-07		250
FN 2070B-6-..	6 (6.9)	0.002	7.8	1		220	-06	-07		450
FN 2070B-10-..	10 (11.5)	0.002	4.5	1		220	-06	-07		670
FN 2070B-12-..	12 (13.8)	0.002	3.25	1		220	-06	-07		670
FN 2070B-16-..	16 (18.4)	0.002	2.8	1		220	-06	-07	-08	1000
FN 2070B-25-08	25 (28.8)	0.002	2	2.2		220			-08	760
FN 2070B-36-08	36 (41.4)	0.002	1.23	2.2		220			-08	790

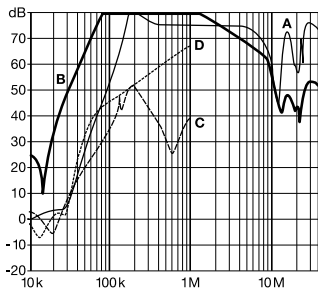
* To compile a complete part number, please replace the .. with the required I/O connection style (e.g. FN 2070-25-08, FN 2070B-10-06).

** Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level. 16A

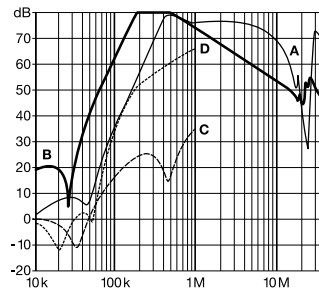
Typical filter attenuation

Per CISPR 17; A = 50Ω/50Ω sym; B = 50Ω/50Ω asym; C = 0.1Ω/100Ω sym; D = 100Ω/0.1Ω sym

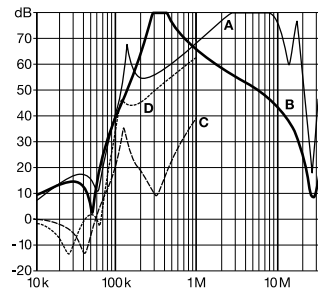
1A types



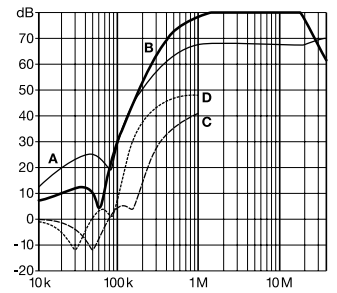
3 to 12A types



16A types

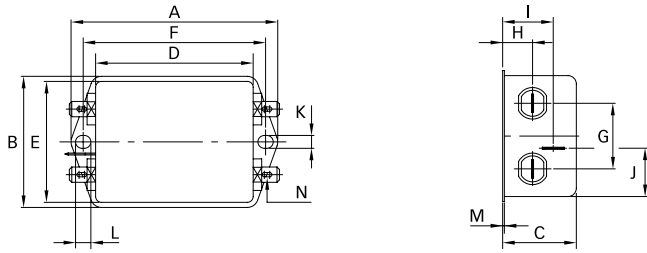


25 and 36A types

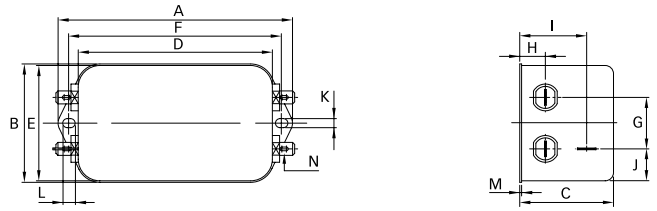


Mechanical data

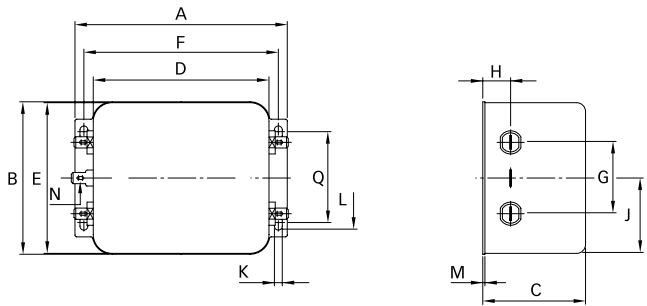
Connection style -06, 1 and 3A types



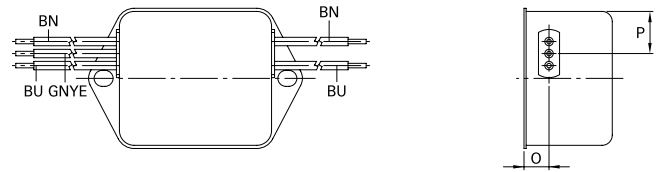
Connection style -06, 6 to 12A types



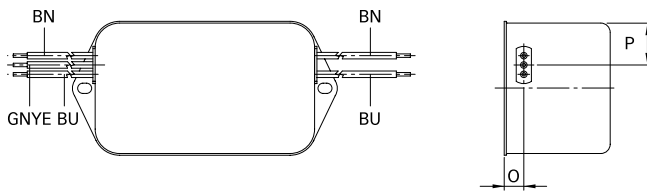
Connection style -06, 16A types



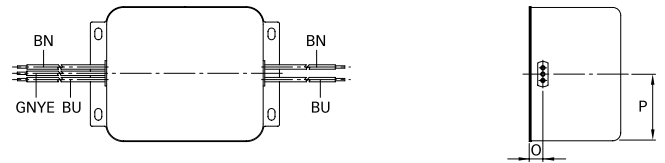
Connection style -07, 1 and 3A types (same dimensions as style -06)



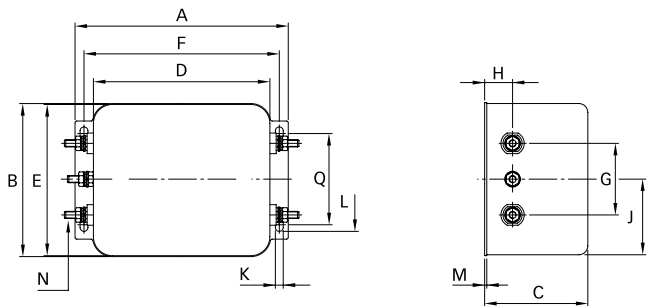
Connection style -07, 6 to 12A types (same dimensions as style -06)



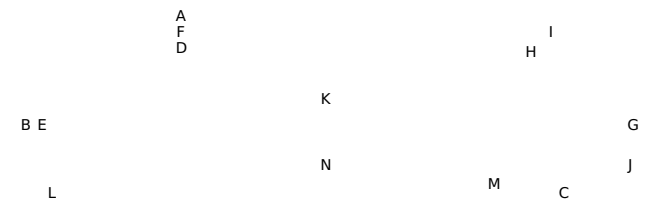
Connection style -07, 16A types (same dimensions as style -06)



Connection style -08, 16A types



Connection style -08, 25 and 36A types



Dimensions

	1A	3A	6A	10A	12A	16A	25A	36A	Tolerances
A	85 ±0.5	85 ±0.5	113.5	156	156	119	156	156	±1
B	54 ±0.5	54 ±0.5	57.5	57.5	57.5	85.5	57.5	57.5	±1
C	30.3 ±0.5	40.3 ±0.5	45.4	45.4	45.4	57.6	45.4	45.4	±1
D	64.8 ±0.5	64.8 ±0.5	94	130.5	130.5	98.5	130.5	130.5	±1
E	49.8	49.8	56	56	56	84.5	56	56	±0.5
F	75	75	103	143	143	109	143	143	±0.3
G	27	27	25	25	25	40	25	25	±0.2
H	12.3	12.3	12.4	12.4	12.4	15.6	12.4	12.4	±0.5
I	20.8	29.8	32.4	32.5	32.5		32.5	32.5	±0.5
J	19.9	11.4	15.5	15.5	15.5	42.25	15.5	15.5	±0.5
K	5.3	5.3	4.4	5.3	5.3	4.4	5.3	5.3	
L	6.3	6.3	6	6	6	7.4	6	6	
M	0.7	0.7	0.9	1	1	1.2	1	1	

Connection style -06

N	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8			
----------	-----------	-----------	-----------	-----------	-----------	-----------	--	--	--

Connection style -07

O	8.3	8.3	8.4	8.4	8.4	8.6			±0.5
----------	-----	-----	-----	-----	-----	-----	--	--	------

P	14.9	14.9	18	18	18	42.25			±0.5
----------	------	------	----	----	----	-------	--	--	------

AWG type wire	AWG 20	AWG 20	AWG 18	AWG 18	AWG 16	AWG 16			
----------------------	--------	--------	--------	--------	--------	--------	--	--	--

Wire length	140	140	140	140	140	140			+5
--------------------	-----	-----	-----	-----	-----	-----	--	--	----

Connection style -08

N						M4	M4	M4	
----------	--	--	--	--	--	----	----	----	--

Q						51			±0.2
----------	--	--	--	--	--	----	--	--	------

All dimensions in mm; 1 inch = 25.4mm

Tolerances according: ISO 2768-m / EN 22768-m

**Headquarters, global
innovation and
development center**

Schaffner Group

Nordstrasse 11
4542 Luterbach
Switzerland
T +41 32 681 66 26
F +41 32 681 66 30
info@schaffner.com
www.schaffner.com

To find your local partner within
Schaffner's global network,
please go to:
www.schaffner.com

© 2014 Schaffner Group
The content of this document
has been carefully checked and
understood. However, neither
Schaffner nor its subsidiaries
assume any liability whatsoever
for any errors or inaccuracies of
this document and the
consequences thereof. Published
specifications are subject to
change without notice. Product
suitability for any area of
application must ultimately be
determined by the customer. In
all cases, products must never
be operated outside their
published specifications.
Schaffner does not guarantee
the availability of all published
products. This disclaimer shall
be governed by substantive
Swiss law and resulting disputes
shall be settled by the courts at
the place of business of
Schaffner Holding AG. Latest
publications and a complete
disclaimer can be downloaded
from the Schaffner website. All
trademarks recognized.

Sales and application centers

China
Schaffner EMC Ltd. Shanghai
T20-3, No 565 Chuangye Road
Pudong New Area
201201 Shanghai
T +86 21 3813 9500
F F +86 21 3813 9501 / 02
cschina@schaffner.com
<http://www.schaffner.com.cn/>

Finland
Schaffner Oy
Sauvonrinne 19 H
08500 Lohja
T +358 19 35 72 71
finlandsales@schaffner.com

France
Schaffner EMC S.A.S.
112, Quai de Bezons
Boîte postale 133
95103 Argenteuil
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Italy
Schaffner EMC S.r.l.
Via Galileo Galilei 47
20092 Cinisello Balsamo (MI)
T +39 02 66 04 30 45/47
F +39 02 61 23 943
italysales@schaffner.com

Japan
Schaffner EMC K.K.
1-32-12, Kamiuma, Setagaya-ku
7F Mitsui-seimei Sangenjaya Bldg.
154-0011 Tokyo
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
<http://www.schaffner.jp>

Singapore
Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial Estate
408705 Singapore
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Germany
Schaffner Deutschland GmbH
Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@schaffner.com

Spain
Schaffner EMC España
Calle Caléndula 93, Miniparc III, Edificio
E
El Soto de la Moraleja Alcobendas
28109 Madrid
T +34 618 176 133
spainsales@schaffner.com

Sweden
Schaffner EMC AB
Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121 / 22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland
Schaffner EMV AG
Nordstrasse 11
4542 Luterbach
T +41 32 6816 626
F +41 32 6816 641
sales@schaffner.ch

Taiwan R.O.C.
Schaffner EMV Ltd.
6 Floor, No. 413
Rui Guang Road
114 Neihu District Taipei City
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand
Schaffner EMC Co. Ltd.
Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang Amphur
Muangng P.O. Box 14
51000 Lamphun
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

UK
Schaffner Ltd.
5 Ashville Way
Molly Millars Lane Wokingham
RG41 2PL Berks hire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
<http://www.schaffner.uk.com>

USA
Schaffner EMC Inc.
52 Mayfield Avenue
08837 Edison
T 1-800-367-5566
T 732-225-9533
F 732-225-4789
usasales@schaffner.com
<http://www.schaffner.com/us>