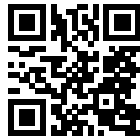


EMC/RFI Filters for Industrial Electronics



- Excellent filter performance for applications with high interference levels
- Filters for two-phase supply up to 2x 520 VAC (P-P) available
- Fast and comfortable snap-in installation on popular TS 35 DIN-rails up to 45 A
- Industrial grade terminal blocks for unsurpassed electrical safety

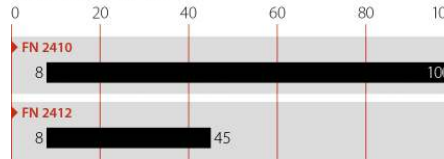


Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
Flammability corresponding to	UL 94 V-2 or better
High potential test voltage	P → E 2000 VAC for 2 sec P → P 2250 VDC for 2 sec (H types) P → E 2700 VDC for 2 sec (H types) P → N 1100 VDC for 2 sec
Maximum continuous operating voltage	1x 250 VAC (FN 2410 / FN 2412) 2x 520/300 VAC (FN 2410H / FN 2412H)
MTBF @ 50°C/250V (Mil-HB-217F)	1,200,000 hours
MTBF @ 50°C/520V (Mil-HB-217F)	250,000 hours (H types)
Operating frequency	dc to 400Hz (except FN 2410H-60/-80/-100: 250 Hz)
Overload capability	4x rated current at switch on, 1.5x rated current for 1 minute, once per hour
Protection category	IP20
Rated currents	8 to 100 A @ 50 °C (FN 2410)
Temperature range (operation and storage)	-25 °C to +100 °C (25/100/21)

Approvals



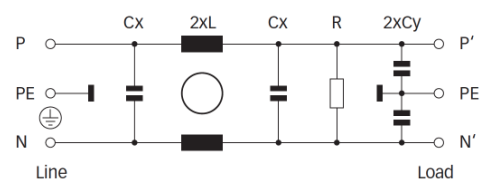
Features and benefits

- FN 2410 filters up to 100 A are designed for traditional chassis mounting
- For extra fast installation, FN 2412 filters up to 45 A can comfortably be snapped-in on popular TS 35 DIN-rails which are common in most electrical cabinets
- Both FN 2410 and FN 2412 are also available as „H versions“. These are ideally suitable for an operation on two phases in a three-phase power network, handling voltages up to 520 VAC
- All filters provide an exceptional conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior. Thus, all filters retain the expected filter performance even in very noisy applications and under full load conditions
- Touch-safe industrial grade terminal blocks provide maximum electrical safety and protect humans from undeliberate contact with live conductors. They help to fulfill the most demanding installation standards

Typical applications

- Small to medium-sized machines and industrial equipment
- High-end single-phase power supplies
- Single-phase variable speed motor drives, inverters and converters
- DIN-rail filter versions are ideal for panel building and electrical cabinets
- Various noisy applications with higher power single-phase or two-phase supply

Typical electrical schematic



Filter selection table

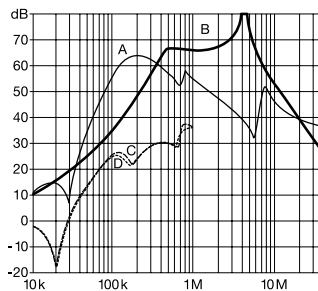
Filter	Rated current @ 50 °C (40 °C)	Leakage current* @ 230 VAC/50 Hz	Power loss @ 25 °C/50 Hz	Input/Output connections 	Weight [kg]
	[A]	[mA]	[W]		
FN 2410-8-44	8 (8.8)	3.4	2.6	-44	0.4
FN 2410-16-44	16 (17.5)	3.4	3.5	-44	0.5
FN 2410-25-33	25 (27.4)	3.4	5.5	-33	0.6
FN 2410-32-33	32 (35.0)	3.4	5.6	-33	0.7
FN 2410-45-33	45 (49.3)	3.4	7.4	-33	0.7
FN 2410-60-34	60 (65.7)	3.4	5.5	-34	1.8
FN 2410-80-34	80 (87.6)	3.4	9.9	-34	1.8
FN 2410-100-34	100 (109.5)	3.4	15.4	-34	1.8
FN 2410H-8-44	8 (8.8)	3.4	2.6	-44	0.5
FN 2410H-16-44	16 (17.5)	3.4	3.5	-44	0.6
FN 2410H-25-33	25 (27.4)	3.4	5.5	-33	0.7
FN 2410H-32-33	32 (35.0)	3.4	5.6	-33	0.8
FN 2410H-60-34	60 (65.7)	3.4	5.5	-34	1.9
FN 2410H-80-34	80 (87.6)	3.4	9.9	-34	1.9
FN 2410H-100-34	100 (109.5)	3.4	15.4	-34	1.9
FN 2412-8-44	8 (8.8)	3.4	2.6	-44	0.4
FN 2412-16-44	16 (17.5)	3.4	3.5	-44	0.6
FN 2412-25-33	25 (27.4)	3.4	5.5	-33	0.7
FN 2412-32-33	32 (35.0)	3.4	5.6	-33	0.8
FN 2412-45-33	45 (49.3)	3.4	7.4	-33	0.8
FN 2412H-8-44	8 (8.8)	3.4	2.6	-44	0.5
FN 2412H-16-44	16 (17.5)	3.4	3.5	-44	0.7
FN 2412H-25-33	25 (27.4)	3.4	5.5	-33	0.8
FN 2412H-32-33	32 (35.0)	3.4	5.6	-33	0.9

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

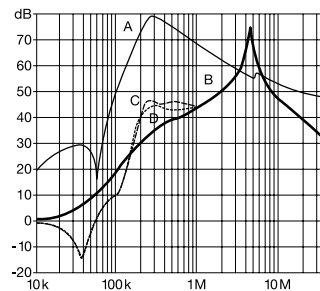
Typical filter attenuation

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

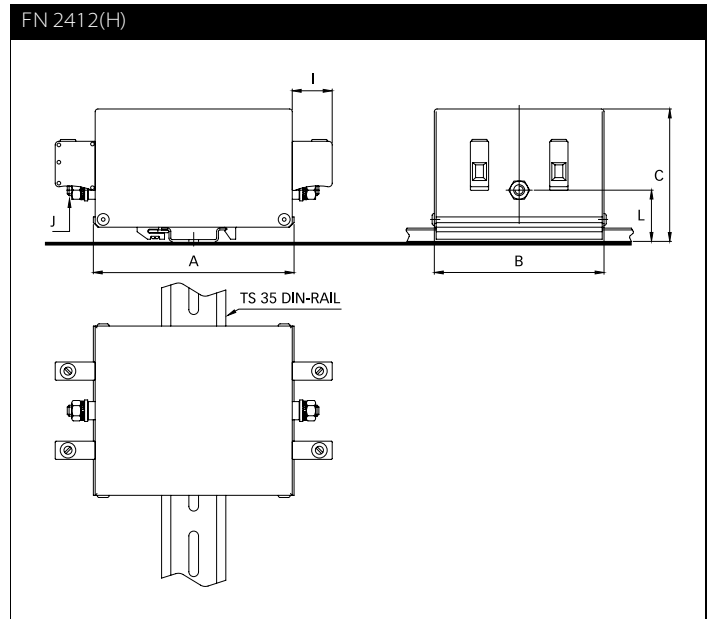
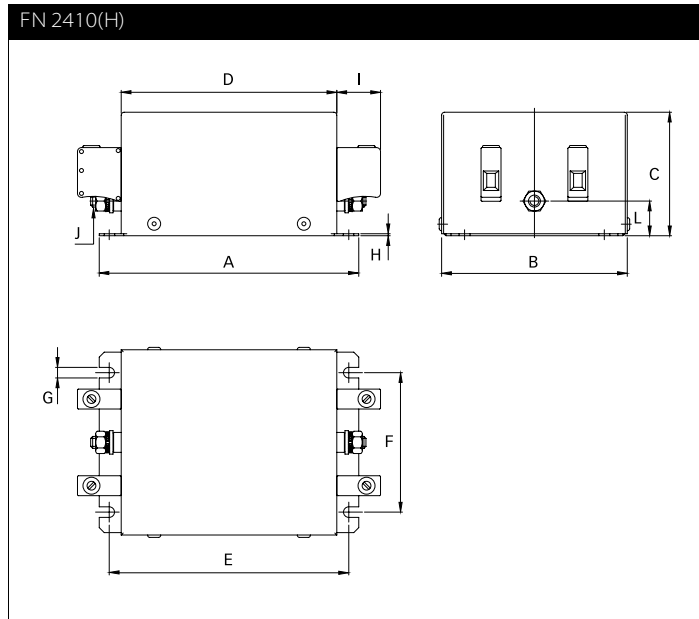
8 to 45 A types



60 to 100 A types



Mechanical data



Dimensions

	FN 2410									FN 2412				
	8 A	16 A	25 A	32 A	45 A	60 A	80 A	100 A	8 A	16 A	25 A	32 A	45 A	
A	130	130	130	130	130	165	165	165	110	110	110	110	110	
B	93	93	93	93	93	115	115	115	93	93	93	93	93	
C	62	62	76	76	76	100	100	100	73	73	87	87	87	
D	108	108	108	108	108	140	140	140						
E	120	120	120	120	120	155	155	155						
F	70	70	70	70	70	90	90	90						
G	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3						
H	1.0	1.0	1.0	1.0	1.0	1.2	1.2	1.2						
I	22	22	25	25	25	39	39	39	22	22	25	25	25	
J	M6	M6	M6	M6	M6	M8	M8	M8	M6	M6	M6	M6	M6	
L	17.5	17.5	31.5	31.5	31.5	39.2	39.2	39.2	28.5	28.5	42.5	42.5	42.5	

All dimensions in mm; 1 inch = 25.4 mm

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

Filter input/output connector cross sections

	-33	-34	-44
Solid wire	16 mm ²	35 mm ²	10 mm ²
Flex wire	10 mm ²	25 mm ²	6 mm ²
AWG type wire	AWG 6	AWG 2	AWG 8
Recommended torque	1.5-1.8 Nm	4.0-4.5 Nm	1.5-1.8 Nm

Please visit www.schaffner.com to find more details on filter connectors.



Headquarters, global innovation and development center

Switzerland

Schaffner Group

Nordstrasse 11
4542 Luterbach
T +41 32 6816 626
F +41 32 6816 630
info@schaffner.com
<http://www.schaffner.com>



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 +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

Germany

Schaffner Deutschland GmbH

Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@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, Kamiyama, 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

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 Muang 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 Berkshire
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, New Jersey
T +1 800 367 5566
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
<http://www.schaffner.com/us>

Schaffner MTC LLC

6722 Thirlane Road
24019 Roanoke, Virginia
T +1 276 228 7943
F +1 276 228 7953
<http://www.schaffner-mtc.com>

Schaffner Trencos LLC

2550 Brookpark Road
44134 Cleveland, Ohio
T +1 216 741 5282
F +1 216 741 4860
www.schaffner-trencos.com

To find your local partner within Schaffner's global network: 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.