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Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

Email & Skype: info@chipsmall.com Web: www.chipsmall.com

Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



EMC/RFI Filters for Industrial Electronics

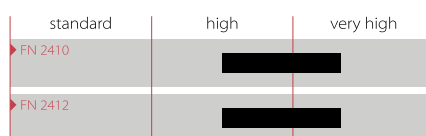


- Excellent filter performance for applications with high interference levels
- Filters for two-phase supply up to 2x 520 VAC (P-P) available
- Fast and comfortable snap-in installation on popular TS 35 DIN-rails up to 45 A
- Industrial grade terminal blocks for unsurpassed electrical safety

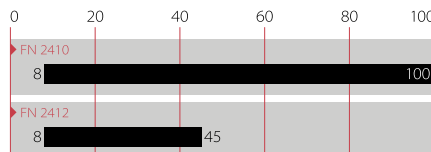


Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Maximum continuous operating voltage	1x 250 VAC (FN 2410/FN 2412) 2x 520/300 VAC (FN 2410 H/FN 2412 H)
Operating frequency	DC to 400 Hz
Rated currents	8 to 100 A @ 50°C (FN 2410) 8 to 45 A @ 50°C (FN 2412)
High potential test voltage	P → E 2000 VAC for 2 sec P → N 1100 VDC for 2 sec P → E 2700 VDC for 2 sec (H types) P → P 2250 VDC for 2 sec (H types)
Protection category	IP 20
Overload capability	4x rated current at switch on, 1.5x rated current for 1 minute, once per hour
Temperature range (operation and storage)	-25°C to +100°C (25/100/21)
Flammability corresponding to	UL 94 V-2 or better
Design corresponding to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 50°C/250 V (Mil-HB-217F)	1,200,000 hours 250,000 hours (H types)

Approvals



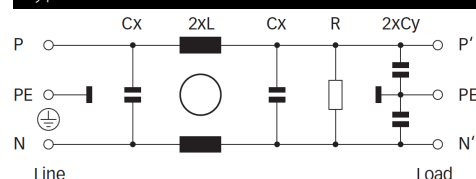
Features and benefits

- 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

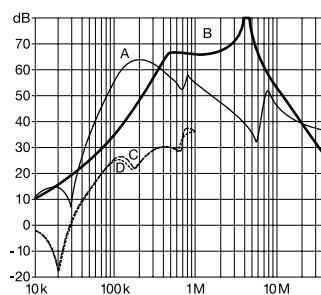
Filter	Rated current	Leakage current*	Power loss	Input/Output connections	Weight
	@ 50°C (40°C)	@ 250 VAC /50 Hz (@ 120 VAC /60 Hz)	@ 25°C/50 Hz		
	[A]	[mA]	[W]		[kg]
FN 2410-8-44	8 (8.8)	2.60 (1.49)	2.6	-44	0.4
FN 2410-16-44	16 (17.5)	2.60 (1.49)	3.5	-44	0.5
FN 2410-25-33	25 (27.4)	2.60 (1.49)	5.5	-33	0.6
FN 2410-32-33	32 (35.0)	2.60 (1.49)	5.6	-33	0.7
FN 2410-45-33	45 (49.3)	2.60 (1.49)	7.4	-33	0.7
FN 2410-60-34	60 (65.7)	2.60 (1.49)	5.5	-34	1.8
FN 2410-80-34	80 (87.6)	2.60 (1.49)	9.9	-34	1.8
FN 2410-100-34	100 (109.5)	2.60 (1.49)	15.4	-34	1.8
FN 2410 H-8-44	8 (8.8)	2.60 (1.49)	2.6	-44	0.5
FN 2410 H-16-44	16 (17.5)	2.60 (1.49)	3.5	-44	0.6
FN 2410 H-25-33	25 (27.4)	2.60 (1.49)	5.5	-33	0.7
FN 2410 H-32-33	32 (35.0)	2.60 (1.49)	5.6	-33	0.8
FN 2410 H-60-34	60 (65.7)	2.60 (1.49)	5.5	-34	1.9
FN 2410 H-80-34	80 (87.6)	2.60 (1.49)	9.9	-34	1.9
FN 2410 H-100-34	100 (109.5)	2.60 (1.49)	15.4	-34	1.9
FN 2412-8-44	8 (8.8)	2.60 (1.49)	2.6	-44	0.4
FN 2412-16-44	16 (17.5)	2.60 (1.49)	3.5	-44	0.6
FN 2412-25-33	25 (27.4)	2.60 (1.49)	5.5	-33	0.7
FN 2412-32-33	32 (35.0)	2.60 (1.49)	5.6	-33	0.8
FN 2412-45-33	45 (49.3)	2.60 (1.49)	7.4	-33	0.8
FN 2412 H-8-44	8 (8.8)	2.60 (1.49)	2.6	-44	0.5
FN 2412 H-16-44	16 (17.5)	2.60 (1.49)	3.5	-44	0.7
FN 2412 H-25-33	25 (27.4)	2.60 (1.49)	5.5	-33	0.8
FN 2412 H-32-33	32 (35.0)	2.60 (1.49)	5.6	-33	0.9

* Maximum leakage under normal operating conditions (acc. to IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

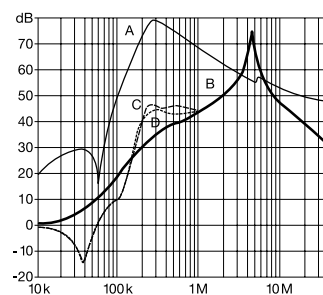
Typical filter attenuation

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

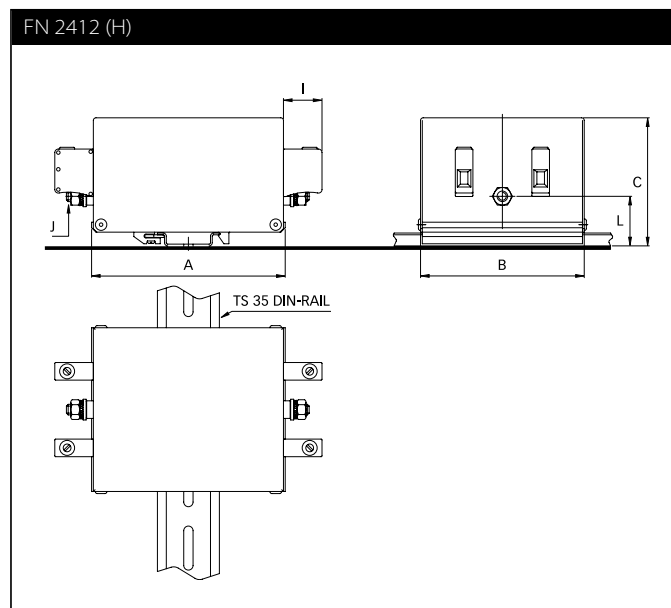
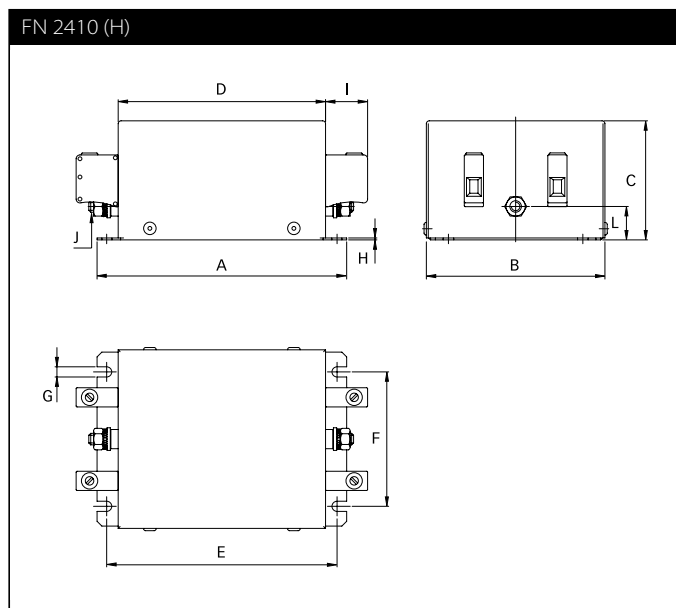
8 to 45 A types



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
Rec. torque (Nm)	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	8.0 - 9.0	8.0 - 9.0	8.0 - 9.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0
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

Switzerland

Schaffner Group

Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
info@schaffner.com
<http://www.schaffner.com>



Sales and application centers

China

Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,
Pudong district
201201 Shanghai
T +86 21 3813 9500
cschina@schaffner.com
<http://www.schaffner.com.cn>

Finland

Schaffner Oy

Sauvonrinne 19 H
08500 Lohja
T +358 50 468 7284
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
95875 Bezons
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

India

Schaffner India Pvt. Ltd

Unit 59, Level, Mfar Greenheart 7
Manyata Tech Park, Hebbal Outer Ring Road
560045 Bangalore
T +91 80 6781 9805
F +91 80 6781 9998
indiasales@schaffner.com

Italy

Schaffner EMC S.r.l.

Via Ticino, 30
20900 Monza (MB)
T +39 039 21 41 070
italysales@schaffner.com

Japan

Schaffner EMC K.K.

1-32-12, Kamiyama, Setagaya-ku
7F Mitsui-seimei Sengenjaya 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.

#05-09, Kg Ubi Ind. 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 Moraleja, Alcobendas
28109 Madrid
T +34 917 912 900
F +34 917 912 901
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Tegeluddsvägen 76, 2tr
115 28 Stockholm
T +46 8 5050 2425
swedensales@schaffner.com
<http://www.schaffner.com>

Switzerland

Schaffner EMV AG

Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
switzerlandsales@schaffner.com

Taiwan R.O.C.

Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road
22175 XiZhi District New Taipei City 22175
T +886 2 2697 5500
F +886 2 2697 5533
taiwansales@schaffner.com
<http://www.schaffner.com.tw>

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

United Kingdom

Schaffner Ltd.

5 Ashville Way, Molly Millars Lane
Wokingham
RG41 2PL Berkshire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.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.schaffnerusa.com>

Schaffner North America

6722 Thirlane Road
24019 Roanoke, Virginia
T +1 276 228 7943
F +1 276 228 7953

Schaffner North America

823 Fairview Road
24382 Wytheville, Virginia
T +1 276 228 7943
F +1 276 228 7258

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