schaffner
shaping electrical power

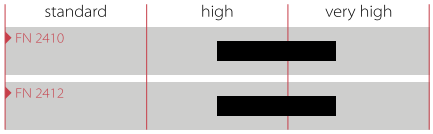
EMC/RFI Filters for Industrial Electronics



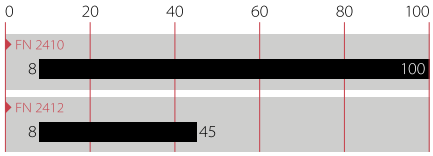
- Excellent filter performance for applications with high interference levels
- Filters for two-phase supply up to 2x 520 VAC (P-P) available
- Fast and comfortable snap-in installation on popular TS 35 DIN-rails up to 45 A
- Industrial grade terminal blocks for unsurpassed electrical safety

Performance indicators

Attenuation performance



Rated current [A]



Approvals

RoHS

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 avail- able 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 life conductors. They help to fulfill the most demanding installation standards

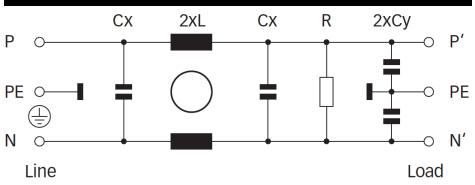
Technical specifications

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)

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

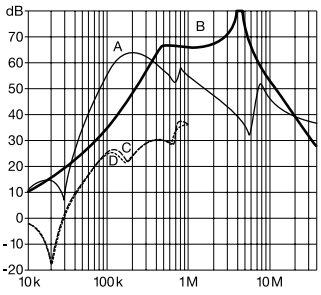
Filter	Rated current @ 50°C (40°C) [A]	Leakage current* @ 250 VAC /50 Hz (@ 120 VAC /60 Hz) [mA]	Power loss @ 25°C/50 Hz [W]	Input/Output connections	Weight [kg]
FN 2410-8-44	8 (8.8)	2.60 (1.49)	2.6	-44	0.4
FN 2410-16-44	16 (17.5)	2.60 (1.49)	3.5	-44	0.5
FN 2410-25-33	25 (27.4)	2.60 (1.49)	5.5	-33	0.6
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.

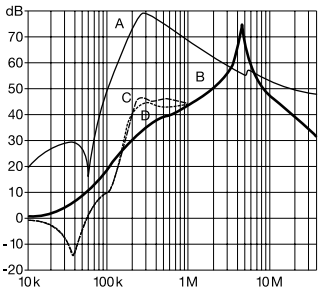
Typical filter attenuation

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

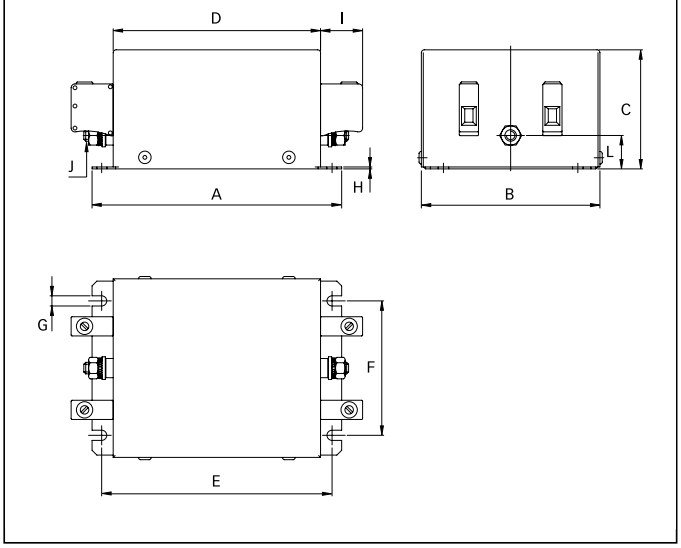


60 to 100 A types

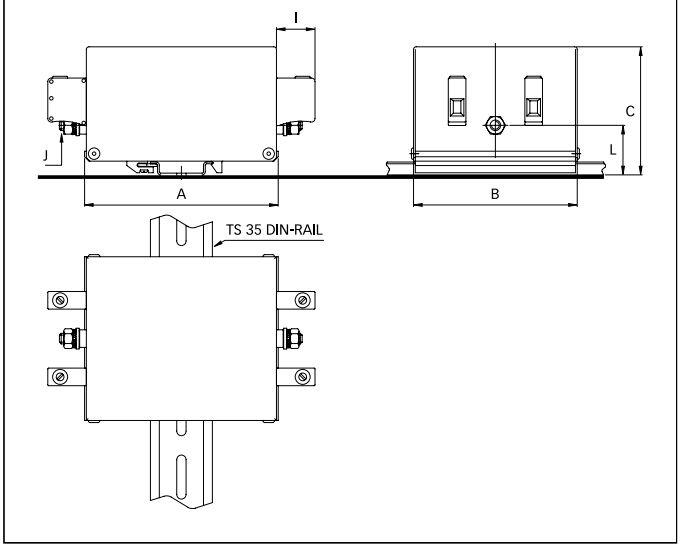


Mechanical data

FN 2410 (H)



FN 2412 (H)



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	1.0-1.2 Nm

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

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