

General Purpose EMI Filter



Rated currents from 1 to 60 A
High differential-mode attenuation
Optional medical version (B type)
Optional safety version (A type)



Performance indicators

Attenuation performance



Rated current [A]



Technical specifications

Operating voltage	110/250 VAC, 50/60 Hz
Operating frequency	dc to 400 Hz
Rated currents	1 to 60 A @ 40 °C max.
High potential test voltage	P → PE 2000 VAC for 2 sec P → N 1100 VDC for 2 sec (30 and 60 A types) P → N 760 VAC for 2 sec (1 to 20 A types) P → PE 2500 VAC for 2 sec (B types)
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 @ 40°C/230V (Mil-HB-217F)	1,250,000 hours 1,750,000 hours (B types)

Approvals



Features and benefits

FN 2020 filters are designed for easy and fast chassis mounting

FN 2020 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 general purpose conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior

FN 2020 filters can be used to cover a broad range of usage and they offer a good size/ampere ratio

FN 2020 filters are also available as two- stage filters (FN 2060, FN 2070 series) for more noisy environment

Various terminal options allow you to select the desired connection style

Typical applications

Electrical and electronic equipment
Consumer goods
Household equipment
Medical equipment
Office automation equipment
Datacom equipment

Typical electrical schematic

□

Filter selection table

Filter*	Rated current @ 40 °C (25 °C)	Leakage current** @ 230 VAC/50 Hz	Inductance L	Capacitance		Resistance R	Input/Output connections			Weight [g]
				Cx	Cy					
	[A]	[mA]	[mH]	[μF]	[nF]	[kΩ]				
FN 2020-1-..	1 (1.15)	0.74	12	0.15	4.7	1000	-06	-07		80
FN 2020-3-..	3 (3.45)	0.74	2.5	0.15	4.7	1000	-06	-07		80
FN 2020-6-..	6 (6.9)	0.74	1	0.15	4.7	1000	-06	-07		80
FN 2020-10-..	10 (11.5)	0.74	0.8	0.15	4.7	1000	-06	-07		85
FN 2020-12-..	12 (13.8)	0.74	0.7	0.15	4.7	1000	-06	-07		85
FN 2020-16-..	16 (18.4)	0.74	0.65	0.15	4.7	1000	-06	-07		140
FN 2020-20-..	20 (23)	0.74	0.6	0.15	4.7	1000	-06		-08	210
FN 2020-30-08	30 (34.5)	0.87	0.67	0.47	10	470			-08	470
FN 2020-60-24	60 (69)	0.87	1	1.5	10	220			-24	1100
FN 2020A-1-..	1 (1.15)	0.074	12	0.15	0.47	1000	-06	-07		80
FN 2020A-3-..	3 (3.45)	0.074	2.5	0.15	0.47	1000	-06	-07		80
FN 2020A-6-..	6 (6.9)	0.074	1	0.15	0.47	1000	-06	-07		80
FN 2020A-10-..	10 (11.5)	0.074	0.8	0.15	0.47	1000	-06	-07		85
FN 2020A-12-..	12 (13.8)	0.074	0.7	0.15	0.47	1000	-06	-07		85
FN 2020A-16-..	16 (18.4)	0.074	0.65	0.15	0.47	1000	-06	-07		140
FN 2020A-20-..	20 (23)	0.074	0.6	0.15	0.47	1000	-06		-08	210
FN 2020A-30-08	30 (34.5)	0.074	0.67	0.47	0.47	470			-08	470
FN 2020A-60-24	60 (69)	0.074	1	1.5	0.47	220			-24	1100
FN 2020B-1-..	1 (1.15)	0.002	12	0.15		1000	-06	-07		80
FN 2020B-3-..	3 (3.45)	0.002	2.5	0.15		1000	-06	-07		80
FN 2020B-6-..	6 (6.9)	0.002	1	0.15		1000	-06	-07		80
FN 2020B-10-..	10 (11.5)	0.002	0.8	0.15		1000	-06	-07		85
FN 2020B-12-..	12 (13.8)	0.002	0.7	0.15		1000	-06	-07		85
FN 2020B-16-..	16 (18.4)	0.002	0.65	0.15		1000	-06	-07		140
FN 2020B-20-..	20 (23)	0.002	0.6	0.15		1000	-06		-08	210
FN 2020B-30-08	30 (34.5)	0.002	0.67	0.47		470			-08	470
FN 2020B-60-24	60 (69)	0.002	1	1.5		220			-24	1100

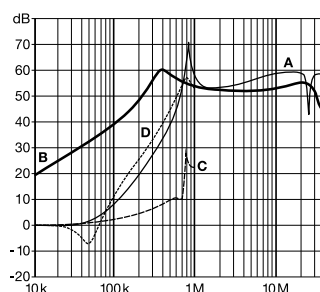
* To compile a complete part number, please replace the .. with the required I/O connection style (e.g. FN 2020-30-08, FN 2020B-10-06).

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

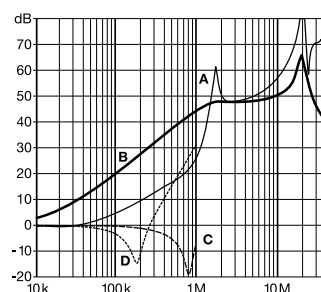
Typical filter attenuation

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

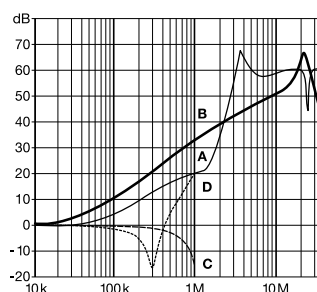
1 and 3 A types



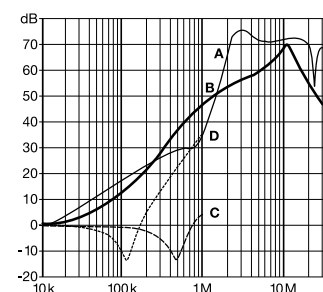
6 to 12 A types



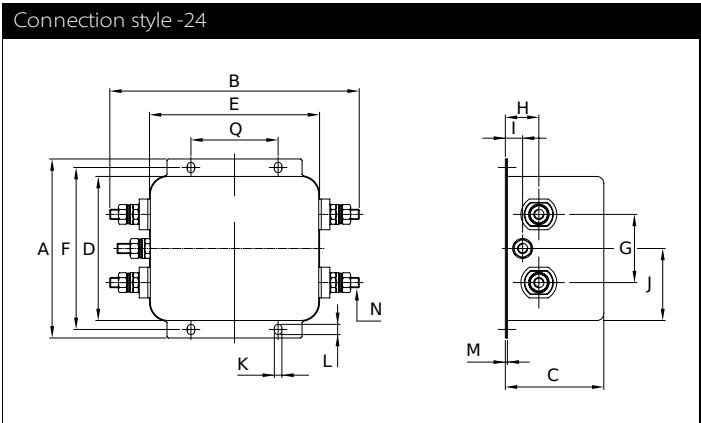
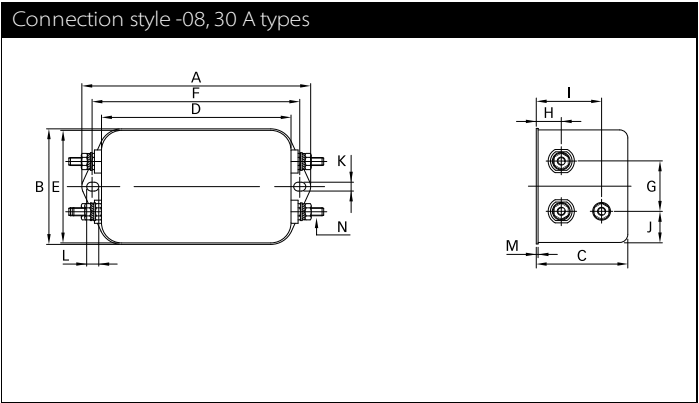
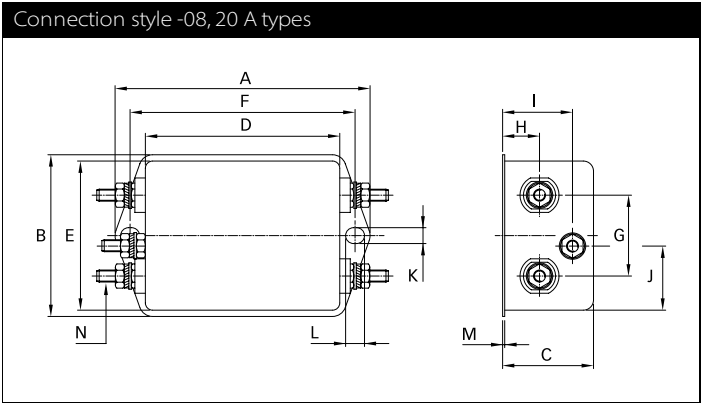
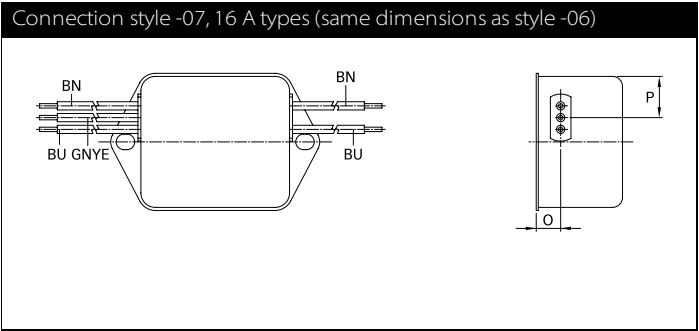
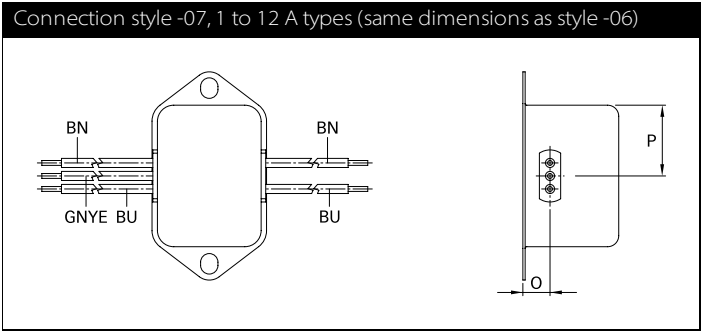
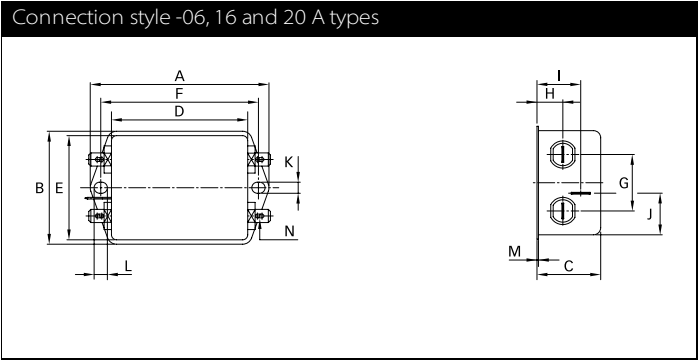
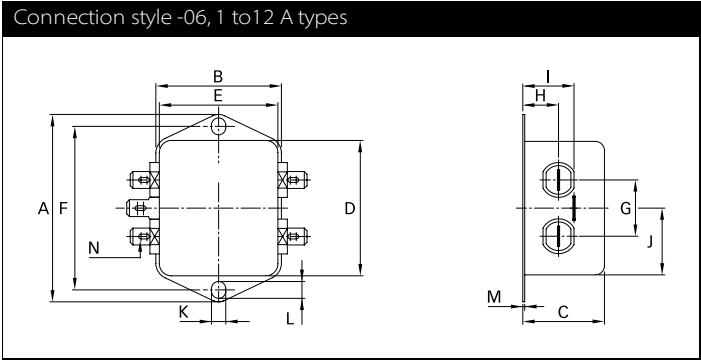
16 and 20 A types



30 and 60 A types



Mechanical data



Dimensions

	1 A	3 A	6 A	10 A	12 A	16 A	20 A	30 A	60 A	Tolerances
A	64	64	64	64	64	71	85	113.5 ±1	105 ±1	±0.5
B	35	35	35	35	35	46.6	54	57.5 ±1	145.9 ±1	±0.5
C	29.3	29.3	29.3	29.3	29.3	29.3	30.3	45.4 ±1	57.6 ±1	±0.5
D	43.5	43.5	43.5	43.5	43.5	50.5	64.8	94 ±1	84.5 ±1	±0.5
E	32.5	32.5	32.5	32.5	32.5	44.5	49.8	56	99.5	±0.5
F	54	54	54	54	54	61	75	103	95	±0.3
G	21	21	21	21	21	21	27	25	40	±0.2
H	9.3	9.3	9.3	9.3	9.3	10.8	12.3	12.4	19.6	±0.5
I	15.3	15.3	15.3	15.3	15.3	19.3	20.8	32.4	10.1	±0.5
J	21.8	21.8	21.8	21.8	21.8	20.1	19.9	15.5	42.25	±0.5
K	5.3	5.3	5.3	5.3	5.3	5.3	5.3	4.4	4.4	
L	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6	6	
M	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.9	1.2	
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	6.3 x 0.8			
Connection style -07										
O	8.3	8.3	8.3	8.3	8.3	8.3				±0.5
P	21.8	21.8	21.8	21.8	21.8	14				±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		
Connection style -24										
N									M6	
Q									51	±0.2

All dimensions in mm; 1 inch = 25.4 mm
Tolerances according: ISO 2768-m / EN 22768-m

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

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