

General Purpose AC/DC EMC/RFI Filter with High Attenuation Performance



- Rated currents from 1 to 30 A
- High performance filter attenuation
- High differential-mode attenuation
- Optional low power loss version (R type)
- Optional medical versions (B type)
- Optional safety versions (A type)
- Optional enhanced performance versions
- Optional overvoltage protection (Z type)



Performance indicators Attenuation performance standard high very high Rated current [A] 0 20 40 60 80 100

Technical Specifications

Maximum continuous operating voltage	250 VAC, 50/60 Hz 250 VDC					
Nominal operating voltage	230 VAC					
Rated currents	1 to 30 A @ 40°C					
Operating frequency	DC to 400 Hz					
High potential test voltage	P -> N 1100 VDC for 2 sec P -> PE 2000 VAC for 2 sec (equiv. cap <88 nF) P -> PE 2550 VDC for 2 sec (equiv. cap >88 nF) P -> PE 2500 VAC for 2 sec (B types)					
Overvoltage category	II acc. IEC 60664-1					
Pollution degree	2 acc. IEC 60664-1					
Surge pulse protection (Z type)	Helps compliance to IEC61000-4-5 (Differential Mode only)					
Temperature range (operation and storage)	-25°C to +100°C (25/100/21)**					
Altitude	2000m (above derating applies)**					
Flammability corresponding to	Laces for -07 version: UL 94 VW-1 Terminal plastic for -06/-08 version: UL 94 V-0 Grommet for -07 version: UL 94 V-0					
Certified to	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)					
MTBF (Mil-HB-217F)	≤10 A:>2,200,000 h @ 40°C/230 V ≥12 A:>1,200,000 h @ 40°C/230 V					

- * maximum RMS operating voltage at rated frequency or the maximum DC operating voltage
- ** for dedicated requests exceeding this specification (e.g. -40 °C or higher altitude) please contact your local Schaffner Sales office

Approvals & Compliances











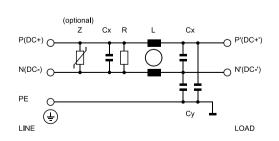
Features and Benefits

- FN 2030 filters are designed for easy and fast chassis mounting
- FN 2030 R versions without discharge capacitors, reducing standby current
- FN 2030 B versions without capacitors to earth comply to 1MOP for ME (medical equipment) acc. IEC 60601-1
- FN 2030 A versions with low capacitance to earth for safety critical applications with a requirement for low leakage currents
- FN 2030 filters offer an optimized filter range for high performance AC and DC applications, in same compact size (M, N1 types)
- All filters provide an exceptional conducted attenuation performance, based on chokes with high permeable core material and excellent thermal behavior
- The higher inductivity versus amperage offers increased attenuation performance with same form factor compared to FN 2010 and FN 2020 filter series
- All FN 2030 filters can be delivered with optional surge pulse protection (Z type).
- Various terminal options allow you to select the desired connection style

Typical Applications

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

Typical electrical schematic



High Performance Single-Phase Filters Schaffner Group DATA SHEET 17. Feb 2025

Filter Selection Table

Filter*	Buy Rated current @ 40°C (25°C)		Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)	Power Loss @25°C/DC	Inductance*** L	Capacitance*** Cx Cy		Resistance*** R		Weight		
		[A]	[mA]	[W]	[mH]	[μF]	[nF]	[kΩ]				[g]
FN2030-1	\₩	1 (1.1)	0.31 (0.18)	0.9	20	0.22	2.2	1000	-06	-07		58
FN2030-3	₩	3 (3.4)	0.47 (0.27)	2.2	14	0.33	3.3	1000	-06	-07		87
FN2030-4	\₩	4 (4.5)	0.47 (0.27)	2.9	14	0.33	3.3	1000	-06	-07		92
FN2030-6	\.	6 (6.7)	0.66 (0.38)	3.2	8	0.47	4.7	680	-06	-07		100
FN2030-8	₩	8 (8.9)	0.66 (0.38)	3.1	8	0.47	4.7	680	-06	-07		170
FN2030-10	₩.	10 (11.2)	0.66 (0.38)	5.3	8	0.47	4.7	680	-06	-07		196
FN2030-12	₩	12 (13.4)	0.79 (0.45)	7.6	4	1.0	10	330	-06	-07		215
FN2030-16	₩.	16 (17.9)	0.79 (0.45)	6.1	4	1.0	10	330	-06	-07	-08	225
FN2030-20	₩.	20 (22.4)	0.79 (0.45)	4.6	4	1.0	10	330	-06		-08	285
FN2030-30-08	₩.	30 (33.5)	0.79 (0.45)	6.0	2	1.0	10	330			-08	326
Reduced Power loss****												
FN2030R-10-06		10 (11.2)	0.66 (0.38)	5.3	8	0.47	4.7		-06			192
FN2030R-16-06		16 (17.9)	0.79 (0.45)	6.1	4	1.0	10		-06			223
FN2030R-20-06		20 (22.4)	0.79 (0.45)	4.6	4	1.0	10		-06			282
FN2030R-30-08		30 (33.5)	0.79 (0.45)	6.0	2	1.0	10				-08	324
Safety (0.04mA IIc)												
FN2030A-1	\₩	1 (1.1)	0.07 (0.04)	0.9	20	0.22	0.47	1000	-06	-07		58
FN2030A-3	\₩	3 (3.4)	0.07 (0.04)	2.2	14	0.33	0.47	1000	-06	-07		87
FN2030A-4	\₩	4 (4.5)	0.07 (0.04)	2.9	14	0.33	0.47	1000	-06	-07		92
FN2030A-6	*	6 (6.7)	0.07 (0.04)	3.2	8	0.47	0.47	680	-06	-07		100
FN2030A-8	₩	8 (8.9)	0.07 (0.04)	3.1	8	0.47	0.47	680	-06	-07		170
FN2030A-10	₩.	10 (11.2)	0.07 (0.04)	5.3	8	0.47	0.47	680	-06	-07		196
FN2030A-12	₩.	12 (13.4)	0.07 (0.04)	7.6	4	1.0	0.47	330	-06	-07		185
FN2030A-16	₩.	16 (17.9)	0.07 (0.04)	6.1	4	1.0	0.47	330	-06	-07	-08	225
FN2030A-20	₩.	20 (22.4)	0.07 (0.04)	4.6	4	1.0	0.47	330	-06		-08	285
FN2030A-30-08	₩.	30 (33.5)	0.07 (0.04)	6.0	2	1.0	0.47	330			-08	326
Medical (0mA IIc)												
FN2030B-1	\.	1 (1.1)	0.00	0.9	20	0.22		1000	-06	-07		58
FN2030B-3	₩	3 (3.4)	0.00	2.2	14	0.33		1000	-06	-07		87
FN2030B-4	₩	4 (4.5)	0.00	2.9	14	0.33		1000	-06	-07		92
FN2030B-6	₩	6 (6.7)	0.00	3.2	8	0.47		680	-06	-07		100
FN2030B-8	₩	8 (8.9)	0.00	3.1	8	0.47		680	-06	-07		170
FN2030B-10	₩.	10 (11.2)	0.00	5.3	8.45	0.47		680	-06	-07		196
FN2030B-12	₩.	12 (13.4)	0.00	7.6	4	1.0		330	-06	-07		185
FN2030B-16	₩.	16 (17.9)	0.00	6.1	4	1.0		330	-06	-07	-08	225
FN2030B-20	₩.	20 (22.4)	0.00	4.6	4	1.0		330	-06		-08	285
FN2030B-30-08	₩.	30 (33.5)	0.00	6.0	2	1.0		330			-08	326
Enhanced performance	77	,										
FN2030N1-1-06	\#	1 (1.1)	5.34 (3.08)	0.9	20	0.22	68	1000	-06			65
FN2030M-3-06	₩.	3 (3.4)	3.69 (2.28)	2.2	14	0.33	47	1000	-06			110
FN2030M-4-06	\ \ 	4 (4.5)	3.69 (2.28)	2.9	14	0.33	47	1000	-06			110
FN2030M-6-06	₩.	6 (6.7)	3.69 (2.28)	3.2	8	0.47	47	680	-06			120
FN2030N1-8-06	₩.	8 (8.9)	5.34 (3.08)	3.1	8	0.47	68	3680	-06			200
FN2030N1-10-06	¥	10 (11.2)	5.34 (3.08)	5.3	8	0.47	68	680	-06			200
FN2030N1-12-06	₩	12 (13.4)	5.34 (3.08)	7.6	4	1.0	68	330	-06			210
FN2030M-16	¥	16 (17.9)	3.69 (2.28)	6.1	4	1.0	47	330	-06		-08	265
FN2030M-20	₩	20 (22.4)	3.69 (2.28)	4.6	4	1.0	47	330	-06		-08	326
									-00			
FN2030M-30-08	$ \stackrel{\bullet}{\mathbb{H}}$	30 (33.5)	3.69 (2.28)	6.0	2	1.0	47	330			-08	346

^{*} To compile a complete part number, please replace the -.. with the required I/O connection style. For surge pulse protection, please add Z (e.g. FN 2030Z-10-06, FN 2030BZ-20-08).

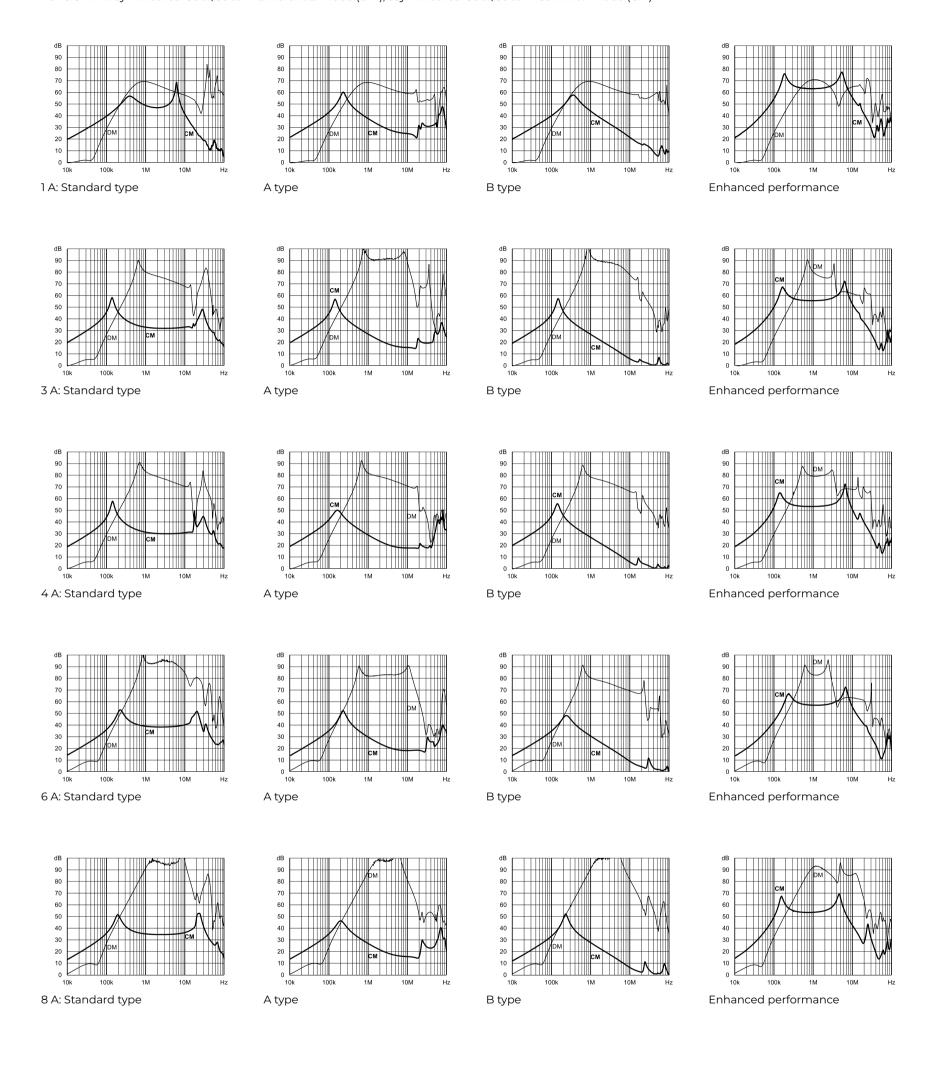
^{**} Maximum leakage under usual AC operating conditions (acc. IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

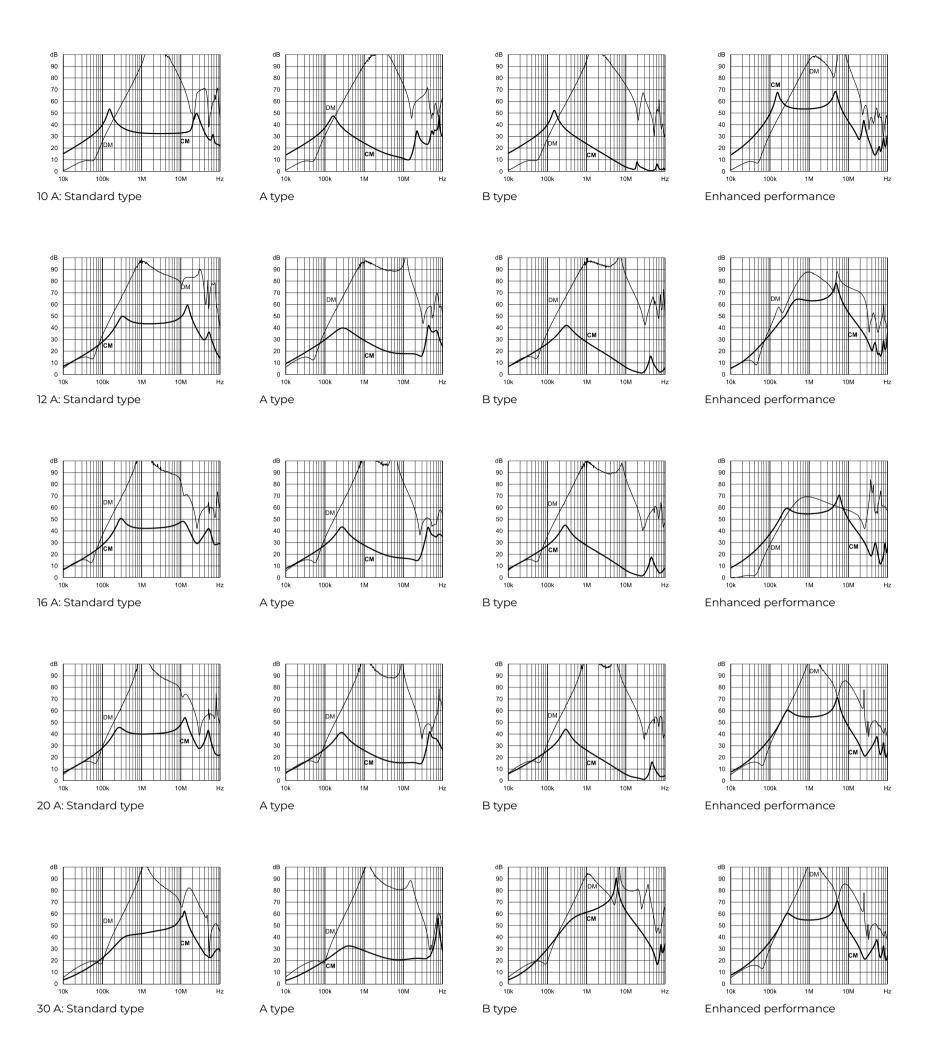
^{***} Tolerances apply: Inductance: -30/+50%, Capacitance: ±20%, Resistance: ±10%

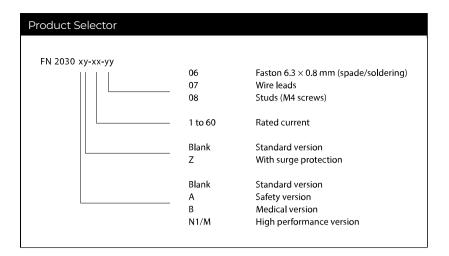
^{****} Reduced power loss in operation due to removed discharge resistors on capacitors

Typical Filter Attenuation

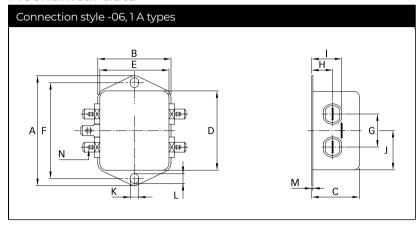
Per CISPR 17: symmetrical 50 Ω /50 Ω -> Differential Mode (DM); asymmetrical 50 Ω /50 Ω -> Common Mode (CM)

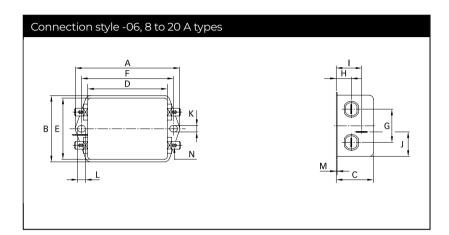


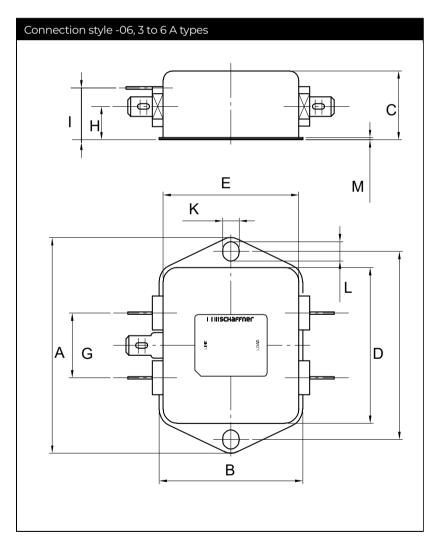


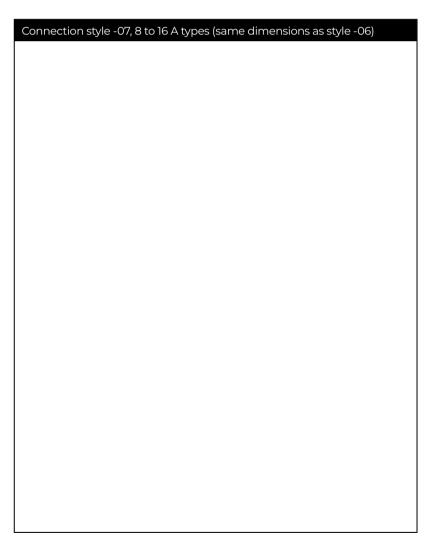


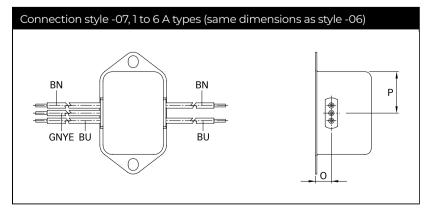
Mechanical data

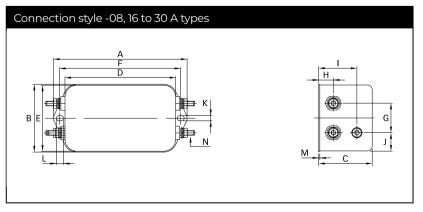












Dimensions

	1 A	3 A	4 A	6 A	8 A	10 A	12 A	16 A	20 A	30 A	Tolerances
Α	64	71	71	71	85	85	85	85	85	85	±0.5
В	35	46.6	46.6	46.6	54	54	54	54	54	54	±0.5
c	24.3	22.3	22.3	22.3	30.3	30.3	30.3	40.3	40.3	40.3	±0.5
D	43.5	50.5	50.5	50.5	64.8	64.8	64.8	64.8	64.8	64.8	±0.5
E	32.5	44.5	44.5	44.5	49.8	49.8	49.8	49.8	49.8	49.8	±0.5
F	54	61	61	61	75	75	75	75	75	75	±0.3
G	21	21	21	21	27	27	27	27	27	27	±0.2
Н	9.3	10.8	10.8	10.8	12.3	12.3	12.3	12.3	12.3	12.3	±0.5
I	15.3	16.8	16.8	16.8	20.8	20.8	20.8	29.8	29.8	29.8	±0.5
J	21.8	25.25	25.25	25.25	19.9	19.9	19.9	11.4	11.4	11.4	±0.5
K	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
L	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
М	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
Connection style -06											
N	6.3 × 0.8	6.3 x 0.8	6.3 × 0.8	6.3 × 0.8	6.3 x 0.8						
Connection style -07											
0	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3			±0.5
P	21.8	14	14	14	14.9	14.9	14.9	14.9			±0.5
AWG type wire	AWG 20	AWG 20	AWG 20	AWG 18	AWG 18	AWG 18	AWG 16	AWG 16			
Wire length	140	140	140	140	140	140	140	140			+5
Connection style -08											
N								M4	M4	M4	
Recommended torque (Nm)								1.2 - 1.3	1.2 - 1.3	1.2 - 1.3	
Earth terminal								1.5 - 1.7	1.5 - 1.7	1.5 - 1.7	

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

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