

# General Purpose EMI Filter with High Attenuation Performance



- | Rated currents from 1 to 30 A
- | High performance filter attenuation
- | High differential-mode attenuation
- | Optional medical versions (B type)
- | Optional safety versions (A type)
- | Optional overvoltage protection (Z type)



### Performance indicators

Attenuation performance



### Approvals



### Features and benefits

- | FN 2030 filters are designed for easy and fast chassis mounting
- | The FN 2030 filters are also available as B versions with no Y-capacitors for medical applications as well as A versions with low capacitance for safety critical applications with a requirement for low leakage currents
- | 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. FN 2030 filters are also available as two-stage filters (FN 2090 series) for very noisy environment
- | Various terminal options allow you to select the desired connection style

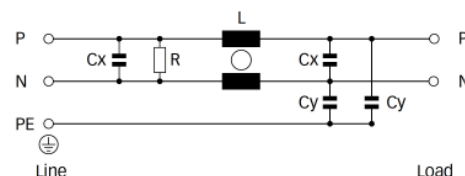
### Technical specifications

<b>Operating voltage</b>	110/250 VAC, 50/60 Hz
<b>Operating frequency</b>	dc to 400 Hz
<b>Rated currents</b>	1 to 30 A @ 40 °C max.
<b>High potential test voltage</b>	P → PE 2000 VAC for 2 sec (standard types) P → N 1100 VDC for 2 sec P → PE 2500 VAC for 2 sec (B types)
<b>Temperature range (operation and storage)</b>	-25 °C to +100 °C (25/100/21)
<b>Design corresponding to</b>	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
<b>Flammability corresponding to</b>	UL 94 V-2 or better
<b>Surge pulse protection (optional)</b>	2kV, IEC 61000-4-5
<b>MTBF @ 40°C/230V (Mil-HB-217F)</b>	2,200,000 hours (1 to 10 A types) 1,200,000 hours (12 to 30 A types)

### Typical application

- | 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



### Filter selection table

Filter*	Rated current	Leakage current**	Inductance	Capacitance		Resistance	Input/Output connections			Weight
	@ 40 °C (25 °C)	@ 230 VAC/50 Hz	L	Cx	Cy	R				[g]
	[A]	[mA]	[mH]	[µF]	[nF]	[kΩ]				
FN 2030-1-..	1 (1.1)	0.34	20	0.22	2.2	1000	-06	-07		58
FN 2030-3-..	3 (3.4)	0.52	14	0.33	3.3	1000	-06	-07		87
FN 2030-4-..	4 (4.5)	0.52	14	0.33	3.3	1000	-06	-07		92
FN 2030-6-..	6 (6.7)	0.73	8	0.47	4.7	680	-06	-07		100
FN 2030-8-..	8 (8.9)	0.73	8	0.47	4.7	680	-06	-07		170
FN 2030-10-..	10 (11.2)	0.73	8	0.47	4.7	680	-06	-07		196
FN 2030-12-..	12 (13.4)	0.87	4	1.0	10	330	-06	-07		185
FN 2030-16-..	16 (17.9)	0.87	4	1.0	10	330	-06	-07		225
FN 2030-20-..	20 (22.4)	0.87	4	1.0	10	330	-06		-08	285
FN 2030-30-08	30 (33.5)	0.87	2	1.0	10	330			-08	326
FN 2030A-1-..	1 (1.1)	0.074	20	0.22	0.47	1000	-06	-07		58
FN 2030A-3-..	3 (3.4)	0.074	14	0.33	0.47	1000	-06	-07		87
FN 2030A-4-..	4 (4.5)	0.074	14	0.33	0.47	1000	-06	-07		92
FN 2030A-6-..	6 (6.7)	0.074	8	0.47	0.47	680	-06	-07		100
FN 2030A-8-..	8 (8.9)	0.074	8	0.47	0.47	680	-06	-07		170
FN 2030A-10-..	10 (11.2)	0.074	8	0.47	0.47	680	-06	-07		196
FN 2030A-12-..	12 (13.4)	0.074	4	1.0	0.47	330	-06	-07		185
FN 2030A-16-..	16 (17.9)	0.074	4	1.0	0.47	330	-06	-07		225
FN 2030A-20-..	20 (22.4)	0.074	4	1.0	0.47	330	-06		-08	285
FN 2030A-30-08	30 (33.5)	0.074	2	1.0	0.47	330			-08	326
FN 2030B-1-..	1 (1.1)	0.002	20	0.22		1000	-06	-07		58
FN 2030B-3-..	3 (3.4)	0.002	14	0.33		1000	-06	-07		87
FN 2030B-4-..	4 (4.5)	0.002	14	0.33		1000	-06	-07		92
FN 2030B-6-..	6 (6.7)	0.002	8	0.47		680	-06	-07		100
FN 2030B-8-..	8 (8.9)	0.002	8	0.47		680	-06	-07		170
FN 2030B-10-..	10 (11.2)	0.002	8.45	0.47		680	-06	-07		196
FN 2030B-12-..	12 (13.4)	0.002	4	1.0		330	-06	-07		185
FN 2030B-16-..	16 (17.9)	0.002	4	1.0		330	-06	-07		225
FN 2030B-20-..	20 (22.4)	0.002	4	1.0		330	-06		-08	285
FN 2030B-30-08	30 (33.5)	0.002	2	1.0		330			-08	326

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

### Typical filter attenuation

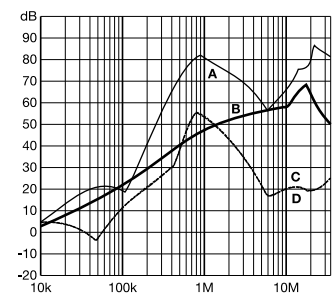
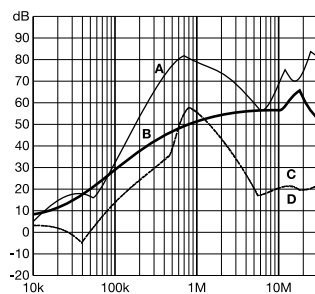
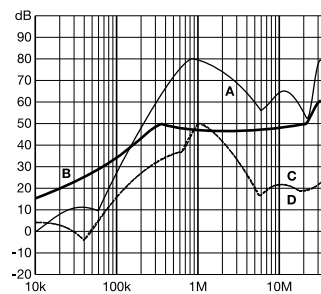
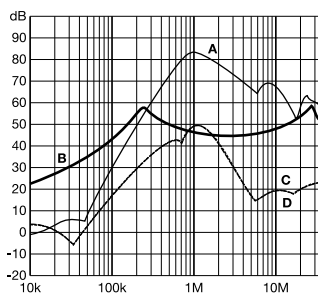
Per CISPR 17; A = 50 Ω/50 Ω sym; B = 50 Ω/50 Ω asym; C = 0.1 Ω/100 Ω sym; D = 100 Ω/0.1 Ω sym

1 to 4 A types

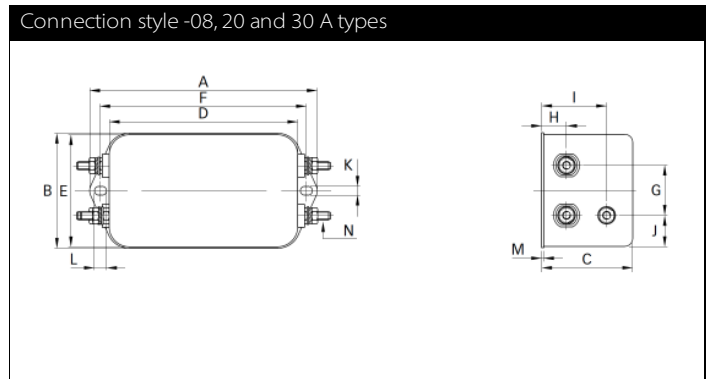
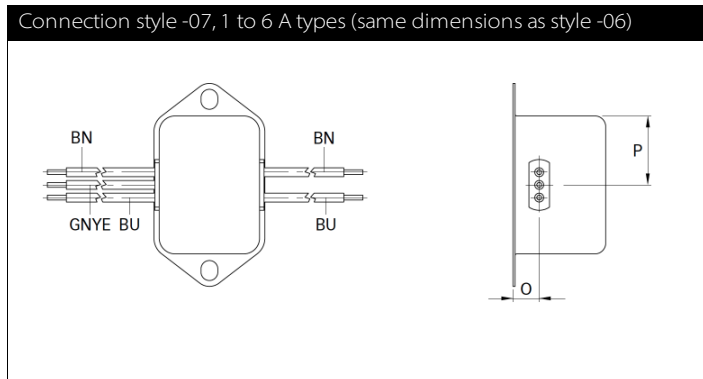
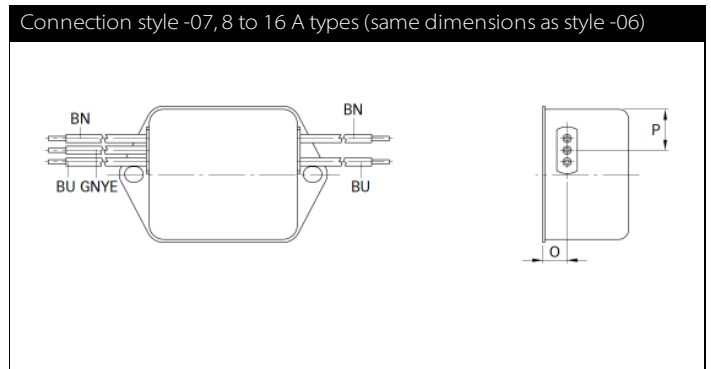
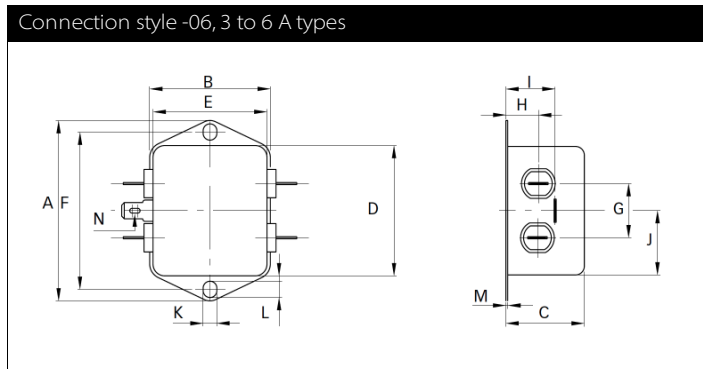
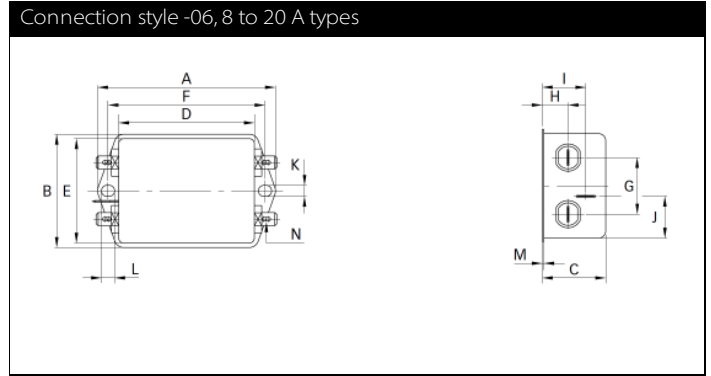
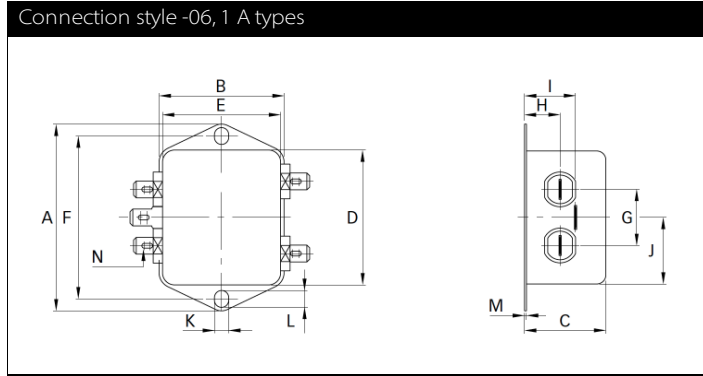
6 to 10 A types

12 to 20 A types

30 A types



**Mechanical data**



## Dimensions

	1 A	3 A	4 A	6 A	8 A	10 A	12 A	16 A	20 A	30 A	Tolerances
<b>A</b>	64	71	71	71	85	85	85	85	85	85	±0.5
<b>B</b>	35	46.6	46.6	46.6	54	54	54	54	54	54	±0.5
<b>C</b>	24.3	22.3	22.3	22.3	30.3	30.3	30.3	40.3	40.3	40.3	±0.5
<b>D</b>	43.5	50.5	50.5	50.5	64.8	64.8	64.8	64.8	64.8	64.8	±0.5
<b>E</b>	32.5	44.5	44.5	44.5	49.8	49.8	49.8	49.8	49.8	49.8	±0.5
<b>F</b>	54	61	61	61	75	75	75	75	75	75	±0.3
<b>G</b>	21	21	21	21	27	27	27	27	27	27	±0.2
<b>H</b>	9.3	10.8	10.8	10.8	12.3	12.3	12.3	12.3	12.3	12.3	±0.5
<b>I</b>	15.3	16.8	16.8	16.8	20.8	20.8	20.8	29.8	29.8	29.8	±0.5
<b>J</b>	21.8	25.25	25.25	25.25	19.9	19.9	19.9	11.4	11.4	11.4	±0.5
<b>K</b>	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
<b>L</b>	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	6.3	
<b>M</b>	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	
<b>Connection style -06</b>											
<b>N</b>	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	6.3 x 0.8	6.3 x 0.8	6.3 x 0.8	
<b>Connection style -07</b>											
<b>O</b>	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	8.3	±0.5
<b>P</b>	21.8	14	14	14	14.9	14.9	14.9	14.9	14.9	14.9	±0.5
<b>AWG type wire</b>	AWG 20	AWG 20	AWG 20	AWG 18	AWG 18	AWG 18	AWG 16	AWG 16	AWG 16	AWG 16	
<b>Wire length</b>	140	140	140	140	140	140	140	140	140	140	
<b>Connection style -08</b>											
<b>N</b>									M4	M4	

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



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