schaffner
energy efficiency and reliability

Multi-stage General Purpose EMI Filter

- Rated currents from 1 to 30 A
- High differential and common-mode attenuation
- Optional medical versions (B type)
- Optional safety versions (A type)

Technical specifications

Operating voltage	110/250 VAC, 50/60 Hz
Operating frequency	dc to 400 Hz
Rated currents	1 to 30 A @ 40 °C max.
High potential test voltage	P –> PE 2000 VAC for 2 sec P –> N 1100 VDC for 2 sec 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)	950,000 hours 1,650,000 hours (B types)

Approvals

RoHS

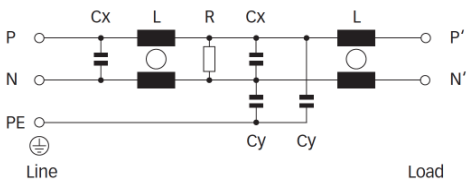
Features and benefits

- FN 2060 two-stage filters are designed for easy and fast chassis mounting
- FN 2060 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 high conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior
- FN 2060 two-stage filters are designed for noisy applications requiering good differential and common-mode attenuation
- FN 2060 filters are also available as single-stage filters (FN 2010 series)
- Various terminal options allow you to select the desired connection style

Typical applications

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Building automation
- Industrial applications
- Machinery
- Medical equipment
- Electronic data processing equipment
- Office automation and datacom equipment
- Various noisy applications requiering good filter performance

Typical electrical schematic



Filter selection table

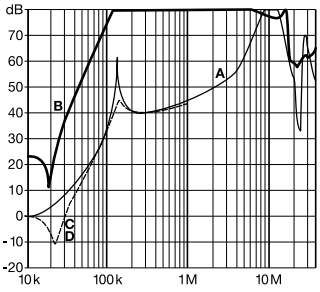
Filter*	Rated current @ 40 °C (25 °C)	Leakage current** @ 230 VAC/50 Hz	Inductance	Capacitance		Resistance	Input/Output connections			Weight
			L	Cx	Cy	R				
	[A]	[mA]	[mH]	[µF]	[nF]	[kΩ]				[g]
FN 2060-1-..	1 (1.2)	0.734	12	0.22	4.7	1000	-06	-07		120
FN 2060-3-..	3 (3.5)	0.734	2.5	0.22	4.7	1000	-06	-07		120
FN 2060-6-..	6 (6.9)	0.734	0.97	0.22	4.7	1000	-06	-07		120
FN 2060-10-..	10 (11.5)	0.734	0.8	0.47	4.7	470	-06	-07		190
FN 2060-12-..	12 (13.8)	0.734	0.58	0.47	4.7	470	-06	-07		190
FN 2060-16-..	16 (18.4)	0.734	0.65	0.33	4.7	1000	-06	-07	-08	260
FN 2060-20-..	20 (23)	0.734	0.6	1	4.7	220	-06		-08	480
FN 2060-30-08	30 (34.5)	0.867	0.6	1	10	220			-08	950
FN 2060A-1-..	1 (1.2)	0.074	12	0.22	0.47	1000	-06	-07		120
FN 2060A-3-..	3 (3.5)	0.074	2.5	0.22	0.47	1000	-06	-07		120
FN 2060A-6-..	6 (6.9)	0.074	0.97	0.22	0.47	1000	-06	-07		120
FN 2060A-10-..	10 (11.5)	0.074	0.8	0.47	0.47	470	-06	-07		190
FN 2060A-12-..	12 (13.8)	0.074	0.58	0.47	0.47	470	-06	-07		190
FN 2060A-16-..	16 (18.4)	0.074	0.65	0.33	0.47	1000	-06	-07	-08	260
FN 2060A-20-..	20 (23)	0.074	0.6	1	0.47	220	-06		-08	480
FN 2060A-30-08	30 (34.5)	0.074	0.6	1	0.47	220			-08	950
FN 2060B-1-..	1 (1.2)	0.002	12	0.22		1000	-06	-07		120
FN 2060B-3-..	3 (3.5)	0.002	2.5	0.22		1000	-06	-07		120
FN 2060B-6-..	6 (6.9)	0.002	0.97	0.22		1000	-06	-07		120
FN 2060B-10-..	10 (11.5)	0.002	0.8	0.47		470	-06	-07		190
FN 2060B-12-..	12 (13.8)	0.002	0.58	0.47		470	-06	-07		190
FN 2060B-16-..	16 (18.4)	0.002	0.65	0.33		1000	-06	-07	-08	260
FN 2060B-20-..	20 (23)	0.002	0.6	1		220	-06		-08	480
FN 2060B-30-08	30 (34.5)	0.002	0.6	1		220			-08	950

* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2060-30-08, FN 2060B-10-06).
** Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

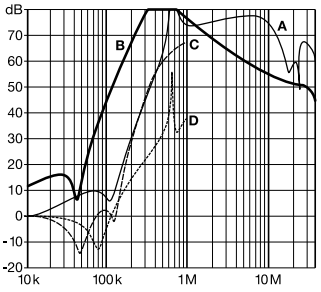
Typical filter attenuation

dPer 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

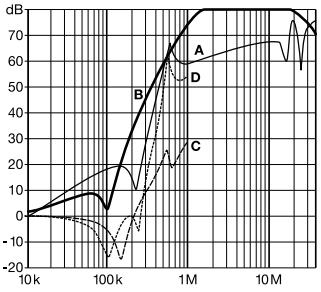
1 A types



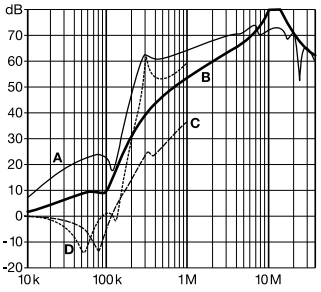
3 to 12 A types



16 A types

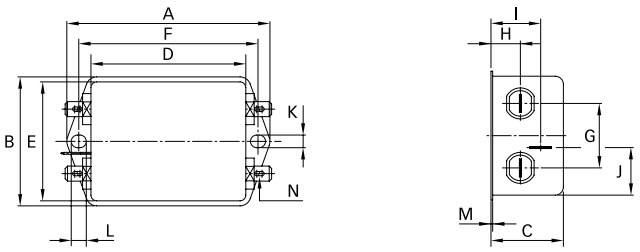


20 and 30 A types

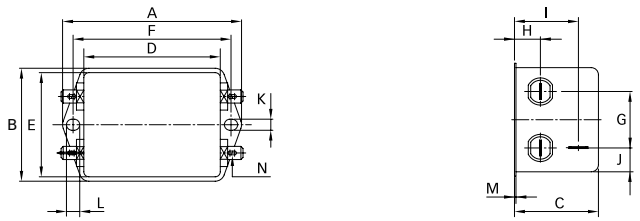


Mechanical data

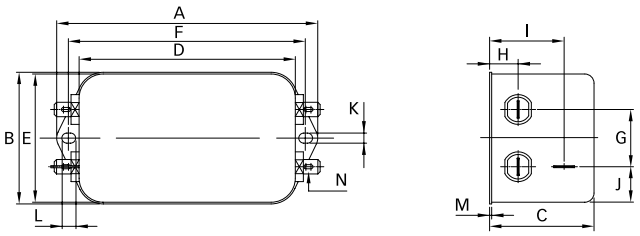
Connection style -06, 1 to 12 A types



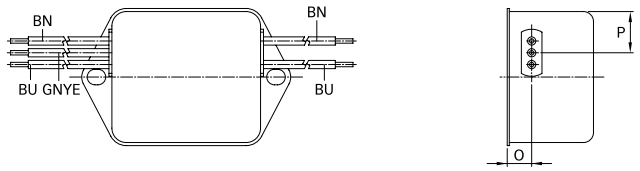
Connection style -06, 16 A types



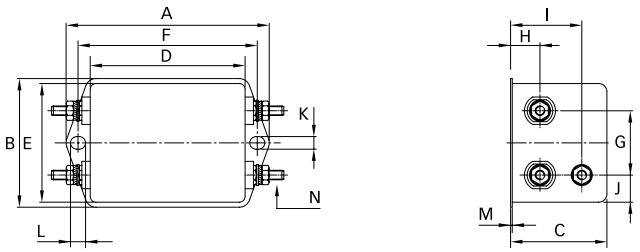
Connection style -06, 20 A types



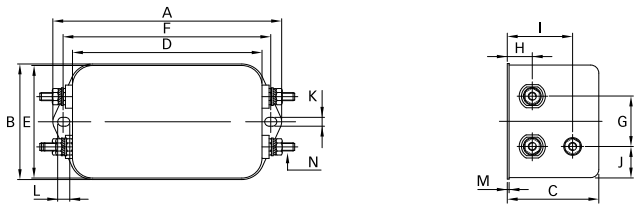
Connection style -07, 1 to 16 A types (same dimensions as style -06)



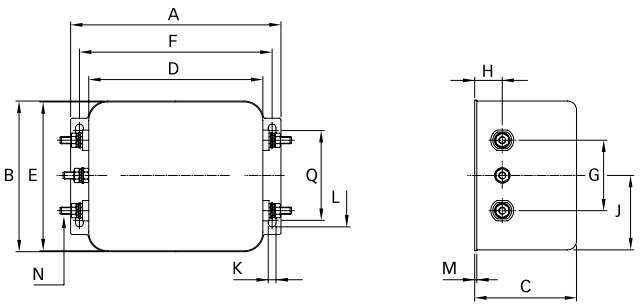
Connection style -08, 16 A types



Connection style -08, 20 A types



Connection style -08, 30 A types



	1 A	3 A	6 A	10 A	12 A	16 A	20 A	30 A	Tolerances
A	71	71	71	85	85	85	113.5 ±1	119 ±1	±0.5
B	46.6	46.6	46.6	54	54	54	57.5 ±1	85.5 ±1	±0.5
C	29.3	29.3	29.3	30.3	30.3	40.3	45.4 ±1	57.6 ±1	±0.5
D	50.5	50.5	50.5	64.8	64.8	64.8	94 ±1	98.5 ±1	±0.5
E	44.5	44.5	44.5	49.8	49.8	49.8	56	84.5	±0.5
F	61	61	61	75	75	75	103	109	±0.3
G	21	21	21	27	27	27	25	40	±0.2
H	10.8	10.8	10.8	12.3	12.3	12.3	12.4	15.6	±0.5
I	19.3	19.3	19.3	20.8	20.8	29.8	32.4		±0.5
J	20.1	20.1	20.1	19.9	19.9	11.4	15.5	42.25	±0.5
K	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	7.4	
M	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	6.3 x 0.8	
Connection style -07									
O	8.3	8.3	8.3	8.3	8.3	8.3			±0.5
P	14	14	14	14.9	14.9	14.9			
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	M4	
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.