1-phase filters
FN 2070

Multi-stage performance EMI filter

schaffner
energy efficiency and reliability

- **Rated currents from 1 to 36A**
- **High differential and common-mode attenuation**
- **High frequency attenuation**
- **Optional medical versions (B type)**
- **Optional safety versions (A type)**

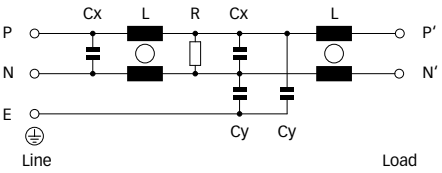
Approvals

RoHS 2002/95/EC

Technical specifications

Maximum continuous operating voltage:	250VAC, 50/60Hz
Operating frequency:	dc to 400Hz
Rated currents:	1 to 36A @ 40°C max.
High potential test voltage:	P –> E 2000VAC for 2 sec
	P –> E 2500VAC for 2 sec (B types)
	P –> N 1100VDC for 2 sec
Temperature range (operation and storage):	-25°C to +100°C (25/100/21)
Flammability corresponding to:	UL 94V-2 or better
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
MTBF @ 40°C/230V (Mil-HB-217F):	1,550,000 hours
	1,600,000 hours (B types)

Typical electrical schematic



Features and benefits

- FN 2070 two-stage filters are designed for easy and fast chassis mounting.
- FN 2070 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 2070 two-stage filters are designed for high frequency attenuation.
- FN 2070 filters are also available as single-stage filters (FN 2020 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 requiring good filter performance

Filter selection table

Filter*	Rated current @ 40°C (25°C) [A]	Leakage current** @ 230VAC/50Hz [mA]	Inductance L [mH]	Capacitance Cx [µF]	Capacitance Cy [nF]	Resistance R [kΩ]	Input/Output connections			Weight [g]
FN 2070-1-..	1 (1.2)	0.734	22	0.33	4.7	1000	-06	-07		190
FN 2070-3-..	3 (3.5)	0.734	9.8	0.47	4.7	470	-06	-07		250
FN 2070-6-..	6 (6.9)	0.734	7.8	1	4.7	220	-06	-07		450
FN 2070-10-..	10 (11.5)	0.734	4.5	1	4.7	220	-06	-07		670
FN 2070-12-..	12 (13.8)	0.734	3.25	1	4.7	220	-06	-07		670
FN 2070-16-..	16 (18.4)	0.734	2.8	1	4.7	220	-06	-07	-08	1000
FN 2070-25-08	25 (28.8)	0.734	2	2.2	4.7	220			-08	760
FN 2070-36-08	36 (41.4)	0.867	1.23	2.2	4.7	220			-08	790
FN 2070A-1-..	1 (1.2)	0.074	22	0.33	0.47	1000	-06	-07		190
FN 2070A-3-..	3 (3.5)	0.074	9.8	0.47	0.47	470	-06	-07		250
FN 2070A-6-..	6 (6.9)	0.074	7.8	1	0.47	220	-06	-07		450
FN 2070A-10-..	10 (11.5)	0.074	4.5	1	0.47	220	-06	-07		670
FN 2070A-12-..	12 (13.8)	0.074	3.25	1	0.47	220	-06	-07		670
FN 2070A-16-..	16 (18.4)	0.074	2.8	1	0.47	220	-06	-07	-08	1000
FN 2070A-25-08	25 (28.8)	0.074	2	2.2	0.47	220			-08	760
FN 2070A-36-08	36 (41.4)	0.074	1.23	2.2	0.47	220			-08	790
FN 2070B-1-..	1 (1.2)	0.002	22	0.33		1000	-06	-07		190
FN 2070B-3-..	3 (3.5)	0.002	9.8	0.47		470	-06	-07		250
FN 2070B-6-..	6 (6.9)	0.002	7.8	1		220	-06	-07		450
FN 2070B-10-..	10 (11.5)	0.002	4.5	1		220	-06	-07		670
FN 2070B-12-..	12 (13.8)	0.002	3.25	1		220	-06	-07		670
FN 2070B-16-..	16 (18.4)	0.002	2.8	1		220	-06	-07	-08	1000
FN 2070B-25-08	25 (28.8)	0.002	2	2.2		220			-08	760
FN 2070B-36-08	36 (41.4)	0.002	1.23	2.2		220			-08	790

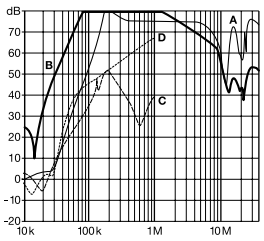
* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2070-25-08, FN 2070B-10-06).

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

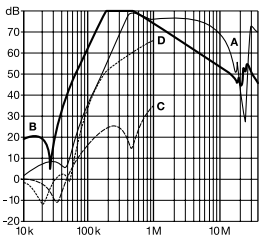
Typical filter attenuation

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

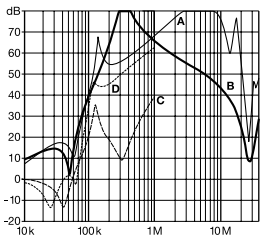
1A types



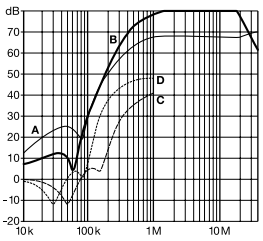
3 to 12A types



16A types

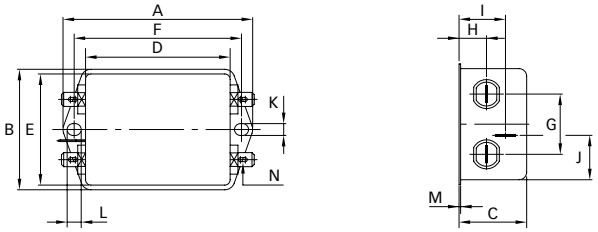


25 and 36A types

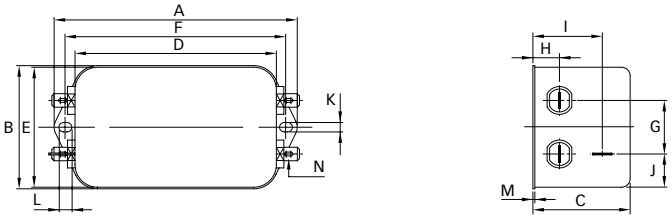


Mechanical data

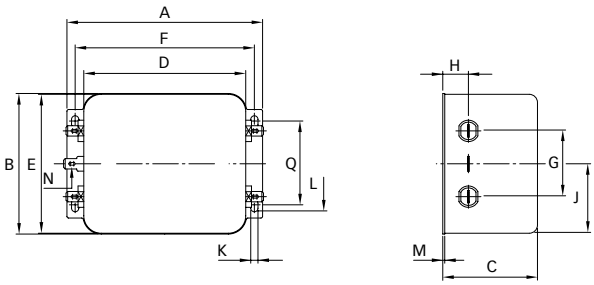
Connection style -06, 1 and 3A types



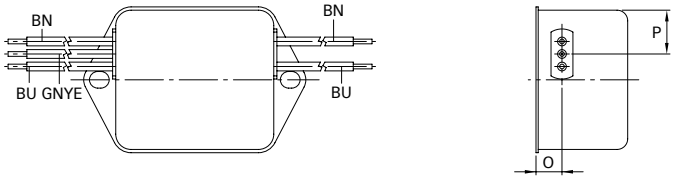
Connection style -06, 6 to 12A types



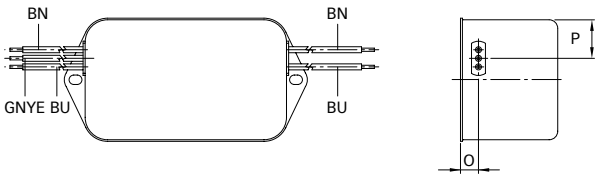
Connection style -06, 16A types



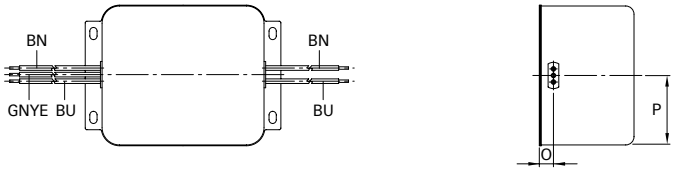
Connection style -07, 1 and 3A types (same dimensions as style -06)



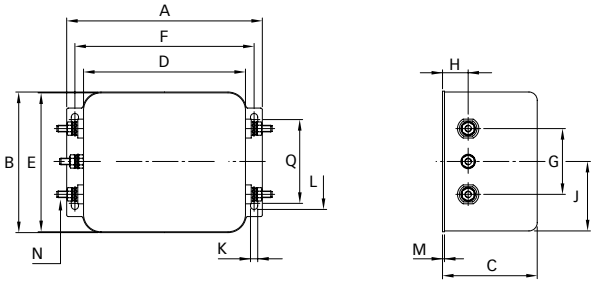
Connection style -07, 6 to 12A types (same dimensions as style -06)



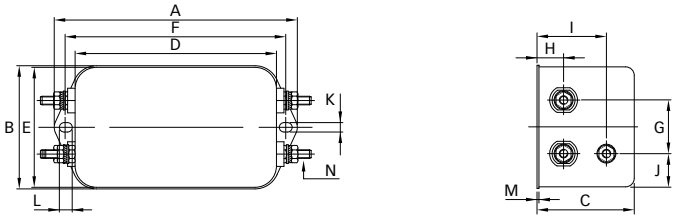
Connection style -07, 16A types (same dimensions as style -06)



Connection style -08, 16A types



Connection style -08, 25 and 36A types



Dimensions

	1A	3A	6A	10A	12A	16A	25A	36A	Tolerances
A	85 ±0.5	85 ±0.5	113.5	156	156	119	156	156	±1
B	54 ±0.5	54 ±0.5	57.5	57.5	57.5	85.5	57.5	57.5	±1
C	30.3 ±0.5	40.3 ±0.5	45.4	45.4	45.4	57.6	45.4	45.4	±1
D	64.8 ±0.5	64.8 ±0.5	94	130.5	130.5	98.5	130.5	130.5	±1
E	49.8	49.8	56	56	56	84.5	56	56	±0.5
F	75	75	103	143	143	109	143	143	±0.3
G	27	27	25	25	25	40	25	25	±0.2
H	12.3	12.3	12.4	12.4	12.4	15.6	12.4	12.4	±0.5
I	20.8	29.8	32.4	32.5	32.5		32.5	32.5	±0.5
J	19.9	11.4	15.5	15.5	15.5	42.25	15.5	15.5	±0.5
K	5.3	5.3	4.4	5.3	5.3	4.4	5.3	5.3	
L	6.3	6.3	6	6	6	7.4	6	6	
M	0.7	0.7	0.9	1	1	1.2	1	1	
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			
Connection style -07									
O	8.3	8.3	8.4	8.4	8.4	8.6			±0.5
P	14.9	14.9	18	18	18	42.25			±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	M4	
Q						51			±0.2

All dimensions in mm; 1 inch = 25.4mm

Tolerances according: ISO 2768-m / EN 22768-m