1-phase filters
FN 610

General purpose EMI filter

SCHAFFNER
safety for electronic systems

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

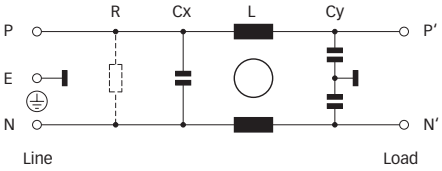
Approvals

RoHS 2002/95/EC

Technical specifications

Maximum continuous operating voltage:	250VAC, 50/60Hz
Operating frequency:	dc to 400Hz
Rated currents:	1 to 30A @ 40°C max.
High potential test voltage:	P –> E 2000VAC for 2 sec
	P –> E 2500VAC for 2 sec (B types)
	P –> N 760VAC 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):	1,200,000 hours

Typical electrical schematic



Features and benefits

- FN 610 filters are designed for easy and fast chassis mounting.
- FN 610 filters offer a perfect combination of performance/size ratio.
- All filters provide a good symmetrical and asymmetrical attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- General purpose filter attenuation performance suitable to be used in a broad range of applications.
- Multiple terminal connections like faston with additional spade solder possibility, wire connection and screw connection.
- Optional safety (A type) or medical (B type) versions with low leakage current.
- FN 610 filters are also available as two-stage filters (FN 660, FN 670 series).
- Custom-specific versions on request.

Typical applications

- Electrical and electronical equipment
- Consumer goods
- Household equipment
- Medical equipment
- Office automation equipment
- Datacom equipment

Filter selection table

Filter*	Rated current @ 40°C (25°C)	Leakage current** @ 230VAC/50Hz	Inductance L	Capacitance Cx	Capacitance Cy	Resistance R	Input/Output connections			Weight -03/-06	Weight -07
	[A]	[µA]	[mH]	[nF]	[nF]	[kΩ]				[g]	[g]
FN 610-1-..	1 (1.15)	190	3	33	2.2			-06	-07	55	65
FN 610-3-..	3 (3.4)	190	2	33	2.2			-06	-07	60	70
FN 610-6-..	6 (6.9)	190	0.75	33	2.2			-06	-07	60	70
FN 610-10-..	10 (11.5)	190	0.45	33	2.2			-06	-07	85	95
FN 610-20-06	20 (23)	190	0.48	33	2.2			-06		220	
FN 610-30-03	30 (34)	190	0.61	33	2.2		-03			630	
FN 610A-1-..	1 (1.15)	40	3	33	0.47	1000		-06	-07	55	65
FN 610A-3-..	3 (3.4)	40	2	33	0.47	1000		-06	-07	60	70
FN 610A-6-..	6 (6.9)	40	0.75	33	0.47	1000		-06	-07	60	70
FN 610A-10-..	10 (11.5)	40	0.45	33	0.47	1000		-06	-07	85	95
FN 610B-1-..	1 (1.15)	2	3	33		1000		-06	-07	55	65
FN 610B-3-..	3 (3.4)	2	2	33		1000		-06	-07	60	70
FN 610B-6-..	6 (6.9)	2	0.75	33		1000		-06	-07	60	70
FN 610B-10-..	10 (11.5)	2	0.45	33		1000		-06	-07	85	95
FN 610B-20-06	20 (23)	2	0.48	33		1000		-06		220	

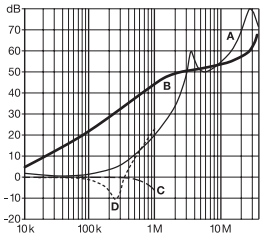
* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 610-1-06, FN 610B-30-03).

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

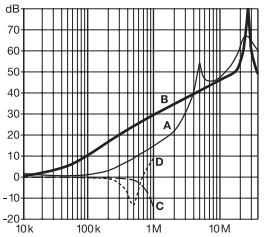
Typical filter attenuation

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

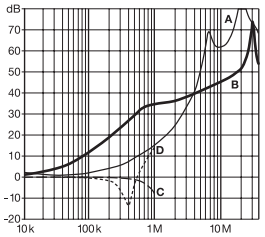
1 to 6A types



10 and 20A types

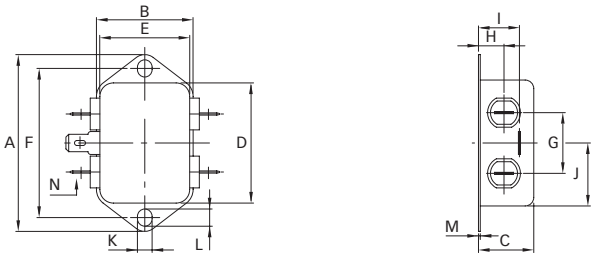


30A types

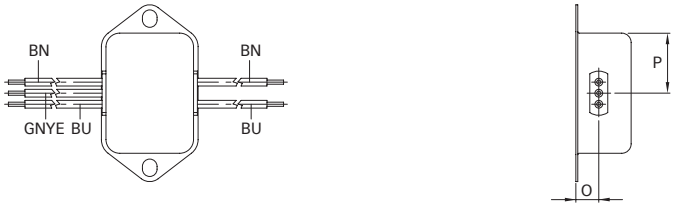


Mechanical data

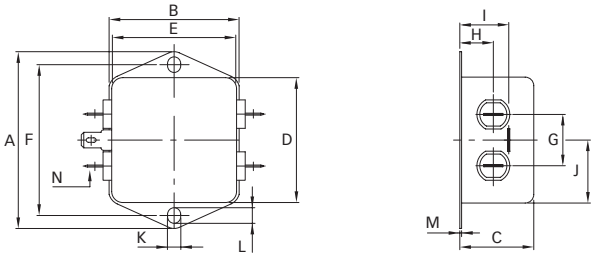
Connection style -06, 1 to 10A types



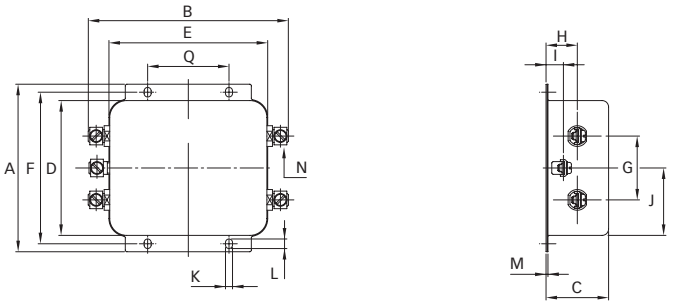
Connection style -07, 1 to 10A types (same dimensions as style -06)



Connection style -06, 20A types



Connection style -03, 30A types



Dimensions

	1A	3A	6A	10A	20A	30A	Tolerances
A	64	64	64	64	71	105	±0.5
B	35	35	35	35	52.6	126	±0.5
C	19.3	19.3	19.3	29.3	29.3	38.6 ±1	±0.5
D	43.5	43.5	43.5	43.5	50.5	84.5 ±1	±0.3
E	32.5	32.5	32.5	32.5	50.5	98.5 ±1	±0.5
F	54	54	54	54	61	95	±0.2
G	21	21	21	21	21	40	±0.5
H	9.3	9.3	9.3	9.3	14.3	19.6	±0.5
I	15.3	15.3	15.3	15.3	20.3	10.1	±0.5
J	16.25	16.25	16.25	16.25	25.25	42.25	±0.5
K	5.3	5.3	5.3	5.3	5.3	4.4	
L	6.3	6.3	6.3	6.3	6.3	6	
M	0.7	0.7	0.7	0.7	0.7	1.2	
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		
Connection style -03							
N						M6	
Q						51	±0.1
Connection style -07							
O	8.3	8.3	8.3	8.3			±0.5
P	21.75	21.75	21.75	21.75			±0.5
AWG type wire	AWG 20	AWG 18	AWG 16	AWG 14			
Wire length	140	140	140	140			±5

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