

## High performance IEC inlet filter

# SCHAFFNER

energy efficiency and reliability



- Rated currents up to 15A
- Excellent attenuation performance
- Optional earth line choke
- Optional medical versions (B type)
- Snap-in versions (S and S1 type)
- Hot inlet versions (HI type)

### Approvals

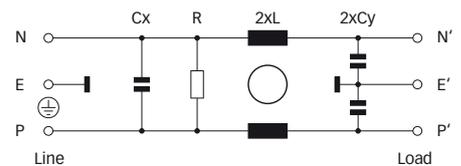


### Technical specifications

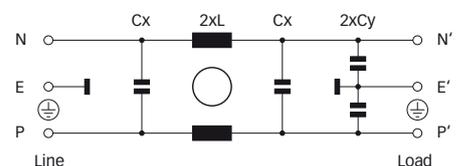
Maximum continuous operating voltage:	250VAC, 50/60Hz
Operating frequency:	dc to 400Hz
Rated currents:	1 to 15A @ 50°C
Approvals by rated current:	1 to 10A (ENEC, CQC) 1 to 15A (UL, CSA)
High potential test voltage:	P → E 2000VAC for 2 sec (standard types) P → E 2500VAC for 2 sec (B types) P → N 1000VAC for 2 sec
Protection category:	IP40 according to IEC 60529
Temperature range (operation and storage):	-25°C to +85°C (25/85/21)
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
Flammability corresponding to:	UL 94V-2 or better
MTBF @ 40°C/230V (Mil-HB-217F):	2,540,000 hours

### Typical electrical schematic

Standard, R and B types



F2 types



The FN 9233 IEC inlet filter combines an excellent IEC inlet and mains filter with excellent filter attenuation in a small form factor. Choosing the FN 9233 product line brings you the rapid availability of a standard filter associated with the necessary safety acceptances. Standard IEC connector filters are a practical solution helping you to pass EMI system approval in a short time. A wide selection on amperage ratings, output connections, mounting possibilities and filters for medical applications are designed to offer you the desired solution. For types with additional earth line choke please consult the FN 9233E data sheet.

### Features and benefits

- Exceptional conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior.
- Rear/front or snap-in mounting.
- Optional earth line choke see FN 9233E data sheet.
- Optional medical versions (B type) according to IEC/EN 60601-1.
- Wide mounting flanges available.
- Different output connections offering maximum flexibility for assembly.
- Custom-specific versions are available on request.

### Typical applications

- Portable electrical and electronic equipment
- Small to medium-sized machines and household equipment
- Single-phase power supplies, switch-mode power supplies
- Test and measurement equipment
- Medical equipment
- Rack mounting equipment

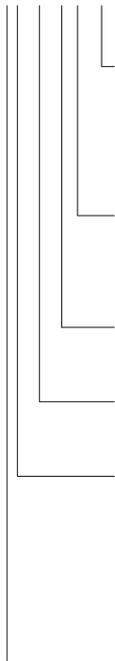
Filter selection table

Filter	Rated current @ 50°C (25°C)	Leakage current* @ 250VAC/50Hz	Inductance L	Capacitance		Resistance R	Output connections 	Weight [g]
	[A]	[µA]	[mH]	Cx1 [µF]	Cx2 [nF]			
FN 9233x-1-06	1 (1.2)	373	22.5	0.1	2.2		-06	37
FN 9233x-3-06	3 (3.5)	373	4.6	0.1	2.2		-06	37
FN 9233x-6-06	6 (7.2)	373	1.6	0.1	2.2		-06	37
FN 9233x-8-06	8 (10.6)	373	0.9	0.1	2.2		-06	37
FN 9233x-10-06	10 (11.6)	373	0.45	0.1	2.2		-06	37
FN 9233x-12-06	12 (12)	373	0.27	0.1	2.2		-06	37
FN 9233x-15-06	15 (15)	373	0.2	0.1	2.2		-06	37
FN 9233x-12-06HI	12 (12)	373	0.27	0.1	2.2		-06	37
FN 9233x-15-06HI	15 (15)	373	0.2	0.1	2.2		-06	37
FN 9233xR-1-06	1 (1.2)	373	22.5	0.1	2.2	1000	-06	37
FN 9233xR-3-06	3 (3.5)	373	4.6	0.1	2.2	1000	-06	37
FN 9233xR-6-06	6 (7.2)	373	1.6	0.1	2.2	1000	-06	37
FN 9233xR-8-06	8 (10.6)	373	0.9	0.1	2.2	1000	-06	37
FN 9233xR-10-06	10 (11.6)	373	0.45	0.1	2.2	1000	-06	37
FN 9233xR-12-06	12 (12)	373	0.27	0.1	2.2	1000	-06	37
FN 9233xR-15-06	15 (15)	373	0.2	0.1	2.2	1000	-06	37
FN 9233xR-12-06HI	12 (12)	373	0.27	0.1	2.2	1000	-06	37
FN 9233xR-15-06HI	15 (15)	373	0.2	0.1	2.2	1000	-06	37
FN 9233xB-1-06	1 (1.2)	2	22.5	0.1		1000	-06	37
FN 9233xB-3-06	3 (3.5)	2	4.6	0.1		1000	-06	37
FN 9233xB-6-06	6 (7.2)	2	1.6	0.1		1000	-06	37
FN 9233xB-8-06	8 (10.6)	2	0.9	0.1		1000	-06	37
FN 9233xB-10-06	10 (11.6)	2	0.45	0.1		1000	-06	37
FN 9233xB-12-06	12 (12)	2	0.27	0.1		1000	-06	37
FN 9233xB-15-06	15 (15)	2	0.2	0.1		1000	-06	37
FN 9233xB-12-06HI	12 (12)	2	0.27	0.1		1000	-06	37
FN 9233xB-15-06HI	15 (15)	2	0.2	0.1		1000	-06	37
FN 9233UF2-1-06	1 (1.2)	560	22.5	0.047	0.047	3.3	-06	46
FN 9233UF2-3-06	3 (3.5)	560	4.6	0.047	0.047	3.3	-06	46
FN 9233UF2-6-06	6 (7.2)	560	1.6	0.047	0.047	3.3	-06	46
FN 9233UF2-8-06	8 (10.6)	560	0.9	0.047	0.047	3.3	-06	46
FN 9233UF2-10-06	10 (11.6)	560	0.45	0.047	0.047	3.3	-06	46
FN 9233UF2-12-06	12 (12)	560	0.27	0.047	0.047	3.3	-06	46
FN 9233UF2-15-06	15 (15)	560	0.2	0.047	0.047	3.3	-06	46

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

**Product selector**

FN 9233xx-yy-..HI-zz



Snap-in range for S version only

Blank: Snap-in range 0.7 to 1.5mm

20: Snap-in range 1.5 to 2.2mm

Blank: Standard IEC inlet type C14

HI: Hot IEC inlet type C16 (12 and 15A types only)

06: Faston 6.3 x 0.8mm (spade/soldering)

1 to 15: Rated current

Blank: Standard version

R: Bleed resistor

B: Medical version (with bleed resistor and without Y2-capacitor)

F2: 2 X-capacitors and higher Y-capacitor value

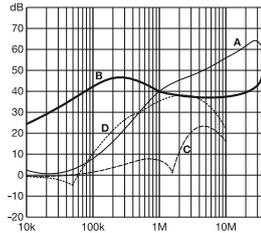
-  Blank: Standard housing with mounting flanges
-  U: Housing with wider mounting flanges
-  S: Snap-in version, snapper on vertical side
-  S1: Snap-in version, snapper on horizontal side

For example: FN 9233-15-06, FN 9233S1B-10-06-20, FN 9233R-12-06HI

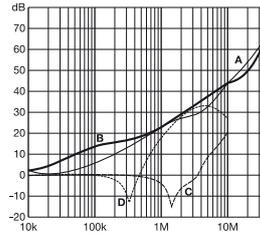
**Typical filter attenuation**

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

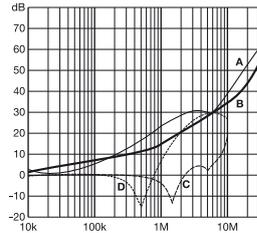
FN 9233: 1 and 3A types



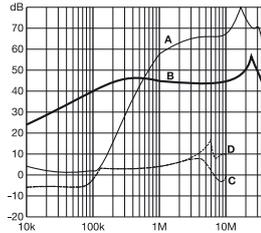
FN 9233: 6 to 10A types



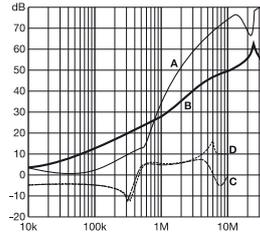
FN 9233: 12 and 15A types



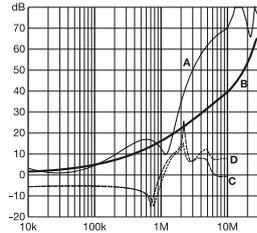
FN 9233UF2: 1 and 3A types



FN 9233UF2: 6 to 10A types

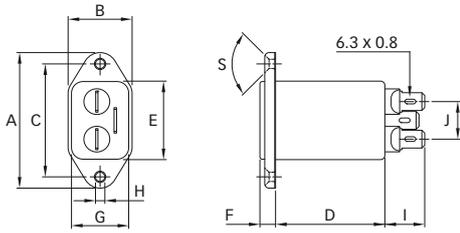


FN 9233UF2: 12 and 15A types

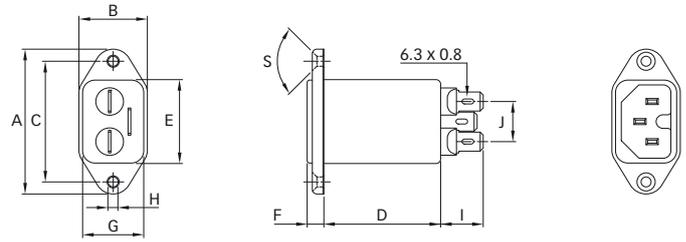


**Mechanical data**

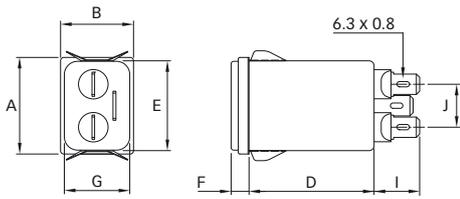
FN 9233



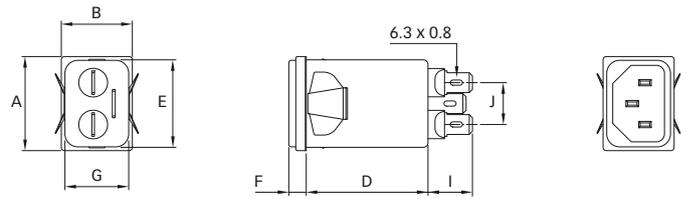
FN 9233-HI



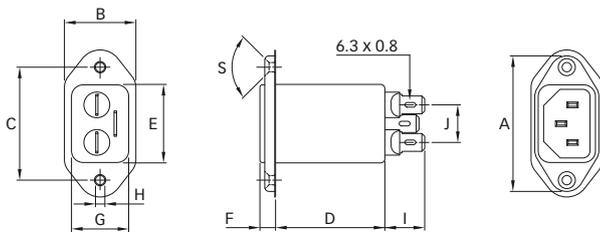
FN 9233S



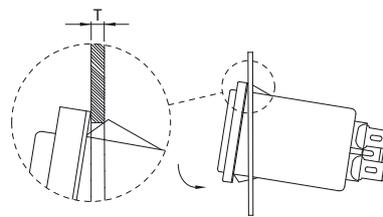
FN 9233S1



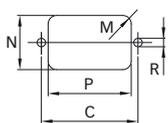
FN 9233U



Installation



Panel cut out



**Dimensions**

	FN 9233	FN 9233U	FN 9233UF2	FN 9233S	FN 9233S1	FN 9233-HI
<b>A</b>	48	51.85	51.85	29.9	29.9	48
<b>B</b>	22.5	25	25	22.4	22.4	22.5
<b>C</b>	40 ±0.2	40 ±0.2	40 ±0.2			40 ±0.2
<b>D</b>	38.4	38.25	46.8	38.4	38.4	38.4
<b>E</b>	27.8	27.8	27.8	27.8	27.8	27.8
<b>F</b>	5.5	5.5	5.5	5.5	5.5	5.5
<b>G</b>	20.1	20.1	20.1	20.1	20.1	20.1
<b>H</b>	Ø3.3	Ø3.3	Ø3.3			Ø3.3
<b>I</b>	14	14.1	14	14	14	14
<b>J</b>	13.3	13.3	13.3	13.3	13.3	13.3
<b>M</b>	R ≤ 3	R ≤ 3	R ≤ 3	R ≤ 1.5	R ≤ 1.5	R ≤ 3
<b>N</b>	21.5	21.5	21.5	20.8	21.9	21.5
<b>P</b>	28.5	28.5	28.5	29.4	28.5	28.5
<b>R</b>	M3	M3	M3			M3
<b>S</b>	90°	90°	90°			90°
<b>T*</b>				0.7 - 1.5	0.7 - 1.5	
<b>T*</b>				1.5 - 2.2	1.5 - 2.2	

\* For selecting the panel thickness, please refer to the filter selector table.

All dimensions in mm; 1 inch = 25.4mm

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