

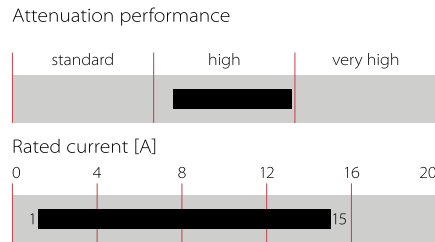
High Performance EMC/EMI Filter



- Rated currents up to 15 A
- Excellent attenuation performance
- Complies with IEC/EN 60601-1
- Snap-in versions (S and S1 type)
- Hot inlet versions (HI type)



Performance indicators



Approvals & Compliances



(CQC except HI-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 9233 E data sheet.

Technical specifications

Maximum continuous operating voltage	250 VAC, 50/60 Hz
Operating frequency	DC to 400 Hz
Rated currents	1 to 15 A @ 50°C
Approvals by rated current	1 to 10 A (ENEC, CQC) 1 to 15 A (UL, CSA)
High potential test voltage	P → PE 2000 VAC for 2 sec (standard types) P → PE 2500 VAC for 2 sec (B types) P → N 1000 VAC for 2 sec
Protection category	IP 40 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 94 V-2 or better
MTBF @ 40°C/230 V (Mil-HB-217F)	2,540,000 hours


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 9233 E data sheet
- FN 9233 B versions comply with the requirements of 1MOP acc. to IEC/EN 60601-1 for creepage and clearance, leakage current and high potential testing
- 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

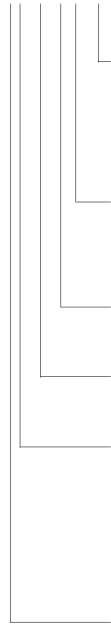
Filter selection table

Filter	Rated current @ 50°C (25°C)	Leakage current* @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)	Inductance L	Capacitance			Resistance R	Output connections 	Weight
				Cx1	Cx2	Cy			
	[A]	[mA]	[mH]	[µF]	[µF]	[nF]	[kΩ]		[g]
FN9233 x-1-06	1 (1.2)	0.31 (0.18)	22.5	0.1		2.2		-06	37
FN9233 x-3-06	3 (3.5)	0.31 (0.18)	4.6	0.1		2.2		-06	37
FN9233 x-6-06	6 (7.2)	0.31 (0.18)	1.6	0.1		2.2		-06	37
FN9233 x-8-06	8 (10.6)	0.31 (0.18)	0.9	0.1		2.2		-06	37
FN9233 x-10-06	10 (11.6)	0.31 (0.18)	0.45	0.1		2.2		-06	37
FN9233 x-12-06	12 (12)	0.31 (0.18)	0.27	0.1		2.2		-06	37
FN9233 x-15-06	15 (15)	0.31 (0.18)	0.2	0.1		2.2		-06	37
FN9233 x-12-06HI	12 (12)	0.31 (0.18)	0.27	0.1		2.2		-06	37
FN9233 x-15-06HI	15 (15)	0.31 (0.18)	0.2	0.1		2.2		-06	37
FN9233 xR-1-06	1 (1.2)	0.31 (0.18)	22.5	0.1		2.2	1000	-06	37
FN9233 xR-3-06	3 (3.5)	0.31 (0.18)	4.6	0.1		2.2	1000	-06	37
FN9233 xR-6-06	6 (7.2)	0.31 (0.18)	1.6	0.1		2.2	1000	-06	37
FN9233 xR-8-06	8 (10.6)	0.31 (0.18)	0.9	0.1		2.2	1000	-06	37
FN9233 xR-10-06	10 (11.6)	0.31 (0.18)	0.45	0.1		2.2	1000	-06	37
FN9233 xR-12-06	12 (12)	0.31 (0.18)	0.27	0.1		2.2	1000	-06	37
FN9233 xR-15-06	15 (15)	0.31 (0.18)	0.2	0.1		2.2	1000	-06	37
FN9233 xR-12-06HI	12 (12)	0.31 (0.18)	0.27	0.1		2.2	1000	-06	37
FN9233 xR-15-06HI	15 (15)	0.31 (0.18)	0.2	0.1		2.2	1000	-06	37
FN9233 xB-1-06	1 (1.2)	0.00	22.5	0.1			1000	-06	37
FN9233 xB-3-06	3 (3.5)	0.00	4.6	0.1			1000	-06	37
FN9233 xB-6-06	6 (7.2)	0.00	1.6	0.1			1000	-06	37
FN9233 xB-8-06	8 (10.6)	0.00	0.9	0.1			1000	-06	37
FN9233 xB-10-06	10 (11.6)	0.00	0.45	0.1			1000	-06	37
FN9233 xB-12-06	12 (12)	0.00	0.27	0.1			1000	-06	37
FN9233 xB-15-06	15 (15)	0.00	0.2	0.1			1000	-06	37
FN9233 xB-12-06HI	12 (12)	0.00	0.27	0.1			1000	-06	37
FN9233 xB-15-06HI	15 (15)	0.00	0.2	0.1			1000	-06	37
FN9233 UF2-1-06	1 (1.2)	0.47 (0.27)	22.5	0.047	0.047	3.3		-06	46
FN9233 UF2-3-06	3 (3.5)	0.47 (0.27)	4.6	0.047	0.047	3.3		-06	46
FN9233 UF2-6-06	6 (7.2)	0.47 (0.27)	1.6	0.047	0.047	3.3		-06	46
FN9233 UF2-8-06	8 (10.6)	0.47 (0.27)	0.9	0.047	0.047	3.3		-06	46
FN9233 UF2-10-06	10 (11.6)	0.47 (0.27)	0.45	0.047	0.047	3.3		-06	46
FN9233 UF2-12-06	12 (12)	0.47 (0.27)	0.27	0.047	0.047	3.3		-06	46
FN9233 UF2-15-06	15 (15)	0.47 (0.27)	0.2	0.047	0.047	3.3		-06	46

* Maximum leakage under normal operating conditions (acc. to IEC60939-3). 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)

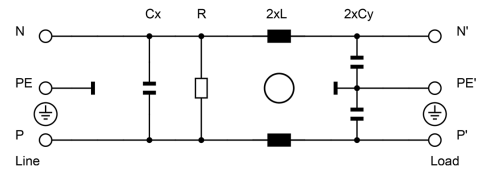
- 06: Faston 6.3 x 0.8mm (spade/soldering)
- 1 to 15: Rated current

- 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

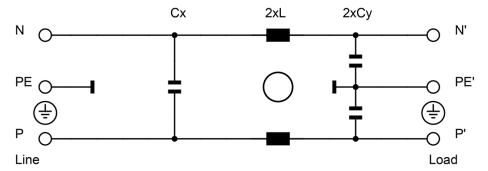
- Blank: Standard housing with mounting flanges
- U: Housing with wider mounting flanges
- S: Snap-in version, snapper on vertical side
- S1: Snap-in version, snapper on horizontal side

Typical electrical schematic

Standard, R and B types



F2 types

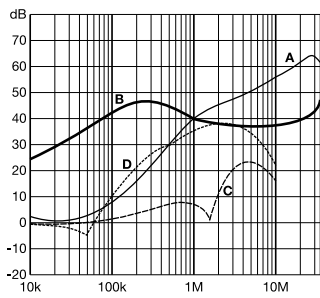


For example: FN 9233-15-06, FN 9233 S1B-10-06-20, FN 9233 R-12-06HI

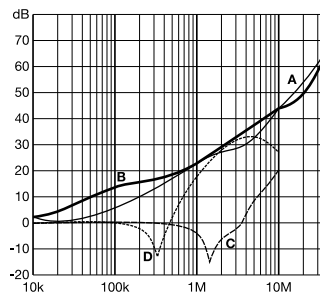
Typical filter attenuation

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

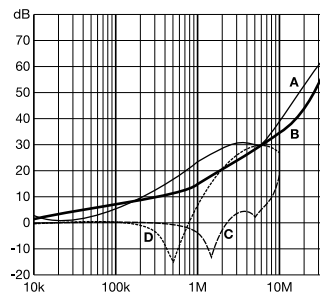
FN 9233: 1 and 3 A types



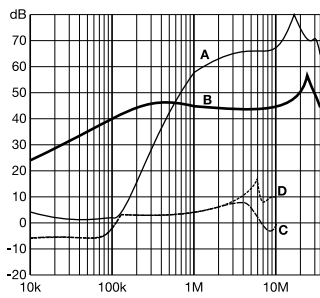
FN 9233: 6 to 10 A types



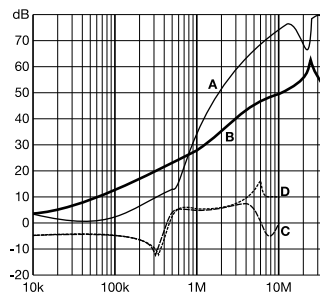
FN 9233: 12 and 15 A types



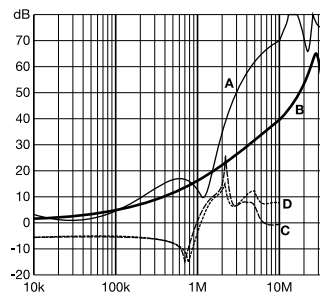
FN 9233 UF2: 1 and 3 A types



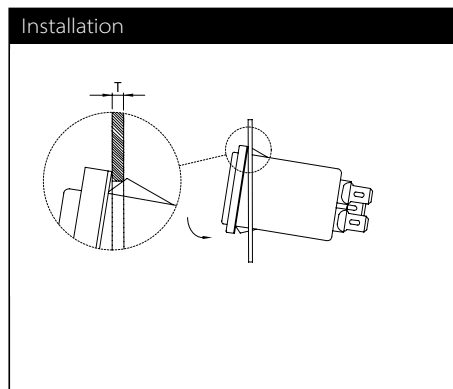
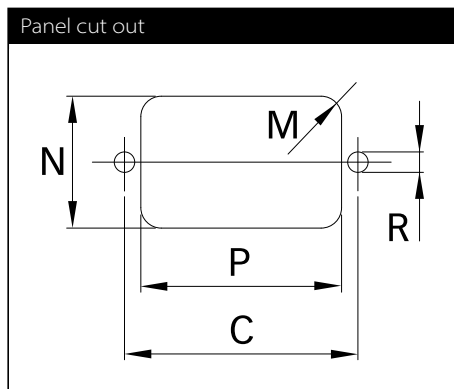
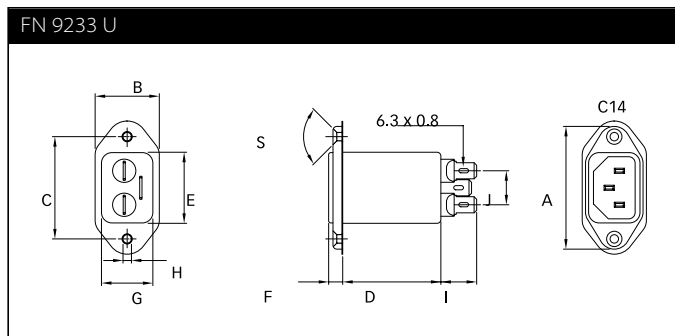
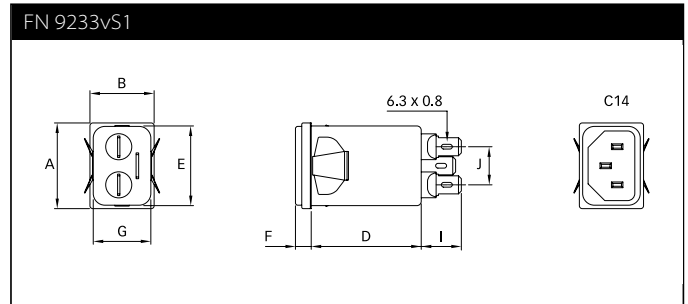
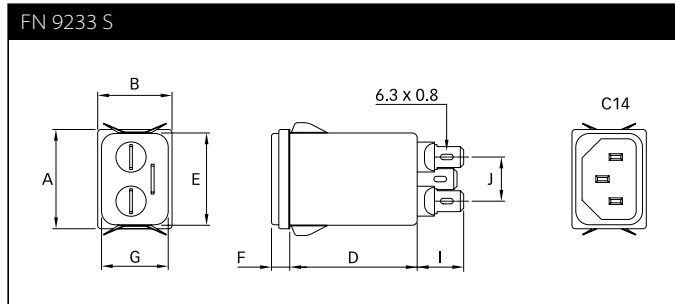
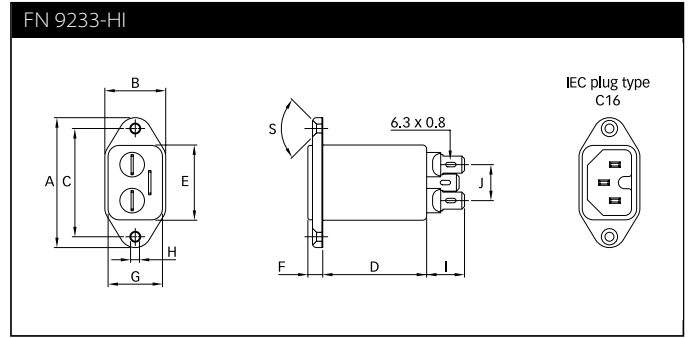
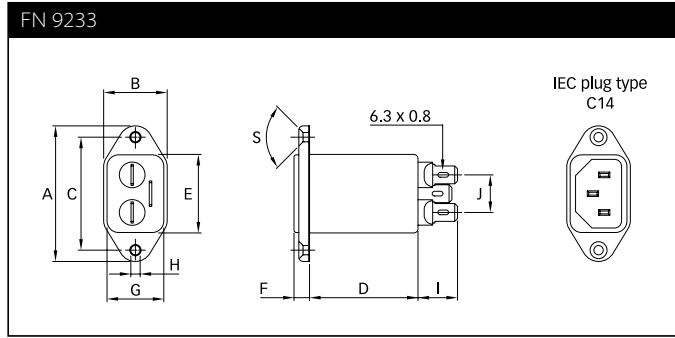
FN 9233 UF2: 6 to 10 A types



FN 9233 UF2: 12 and 15 A types



Mechanical data



Dimensions

	FN 9233	FN 9233 U	FN 9233 UF2	FN 9233 S	FN 9233 S1	FN 9233-HI	Tol.
A	48	48	48	29.9	29.9	48	
B	22.4	25	25	22.4	22.4	22.4	
C	40	40	40			40	±0.2
D	38.25	38.25	46.7	38.25	38.25	38.25	
E	27.8	27.7	27.7	27.8	27.8	27.8	+0.6/-0
F	5.7	5.7	5.7	5.7	5.7	5.7	
G	20.1	20.1	20.1	20.1	20.1	20.1	+0.6/-0
H	Ø3.3	Ø3.3	Ø3.3			Ø 3.3	
I	14	14	14	14	14	14	
J	13.3	13.3	13.3	13.3	13.3	13.3	
M	R ≤3	R ≤3	R ≤3	R ≤1.5	R ≤1.5	R ≤3	
N	21.5	21.5	21.5	20.8	21.9	21.5	
P	28.5	28.5	28.5	29.4	28.5	28.5	
R*	M3	M3	M3			M3	
S	90°	90°	90°			90°	
T**				0.7 - 1.5	0.7 - 1.5		
T**				1.5 - 2.2	1.5 - 2.2		

* Recommended torque for M3 (90° countersunk flat head) is 0.5 Nm

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

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 connectors.

Accessories

Power Cord with angled Locking System C13



- | Locking system for standardized IEC C14 inlet filter
- | No accidental disconnection
- | Rated current up to 15 A
- | Fits any Schaffner IEC C14 inlet filter
- | Retrofit for any IEC C14 inlet
- | Various power line plugs for international usage

[Datasheet PDF >](#)

IL 13P IEC C13 Rewireable Angled Connectors with Locking System



- | Locking system for standardized IEC C14 inlet filter
- | No accidental disconnection
- | Rated current up to 15 A
- | Fits any Schaffner IEC C14 inlet filter
- | Retrofit for any IEC C14 inlet
- | Various power line plugs for international usage

[Datasheet PDF >](#)

IL 13P IEC C13 Rewireable Connectors with Locking System



- | Guards against accidental disconnection
- | Requires no other equipment or special inlets to secure it
- | Rewireable - offering total flexibility when assembling cables
- | Fits any Schaffner IEC C14 inlet Filter
- | Can be retrofitted
- | Various power line plugs for international usage
- | LSZH - Low smoke zero halogen

[Datasheet PDF >](#)



Headquarters, global innovation and development

Switzerland

Schaffner Group

Industrie Nord
Nordstrasse 11e
4542 Luterbach
T +41 32 681 66 26
info@schaffner.com



Sales and application centers

China

Schaffner EMC Ltd. Shanghai

T20-3 C, No 565 Chuangye Road,
Pudong district
201201 Shanghai
T +86 21 3813 9500
cschina@schaffner.com
www.schaffner.com.cn

Finland

Schaffner Oy

Sauvonrinne 19 H
08500 Lohja
T +358 50 468 7284
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.

16-20 Rue Louis Rameau
95875 Bezons
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Germany

Schaffner Deutschland GmbH

Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
germanysales@schaffner.com

India

Schaffner India Pvt. Ltd

REGUS WORLD TRADE CENTRE
WTC, 22nd Floor Unit No 2238, Brigade
Gateway Campus, 26/1, Dr. Rajkumar Road
Malleshwaram (W)
560055 Bangalore
T +91 80 67935355
indiasales@schaffner.com

Italy

Schaffner EMC S.r.l.

Via Ticino, 30
20900 Monza (MB)
T +39 039 21 41 070
italysales@schaffner.com

Japan

Schaffner EMC K.K.

Taiju-Seimei Sangenjaya Bldg.
1-32-12, Kamiyuma, Setagaya-ku
154-0011 Tokyo
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Singapore

Schaffner EMC Pte Ltd.

#05-09, Kg Ubi Ind. Estate
408705 Singapore
T +65 6377 3283
F +65 6377 3281
singaporesales@schaffner.com

Spain

Schaffner EMC España

Calle Caléndula 93, Miniparc III, Edificio E
El Soto de Moraleja, Alcobendas
28109 Madrid
T +34 917 912 900
F +34 917 912 901
spainsales@schaffner.com

Sweden

Schaffner EMC AB

Östermalmstorg 1
114 42 Stockholm
T +46 8 5050 2425
swedensales@schaffner.com
www.schaffner.com

Switzerland

Schaffner EMV AG

Industrie Nord
Nordstrasse 11e
4542 Luterbach
T +41 32 681 66 88
T +41 32 681 66 26
switzerlandsales@schaffner.com

Taiwan

Schaffner EMV Ltd.

20 Floor-2, No 97, Section 1, XinTai 5th Road
22175 XiZhi District New Taipei City 22175
T +886 2 2697 5500
F +886 2 2697 5533
taiwansales@schaffner.com
www.schaffner.com.tw

Thailand

Schaffner EMC Co. Ltd.

Northern Region Industrial Estate
67 Moo 4 Tambon Ban Klang
Amphur Muangng P.O. Box 14
51000 Lamphun
T +66 53 58 11 04
F +66 53 58 10 19
thailandsales@schaffner.com

United Kingdom

Schaffner Ltd.

1, Oakmede Place
Binfield
RG42 4JF Berkshire
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com

USA

Schaffner EMC Inc.

52 Mayfield Avenue
Edison, New Jersey
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffnerusa.com

To find your local partner within Schaffner's global network: www.schaffner.com

© 2021 Schaffner Group

The content of this document has been carefully checked and understood. However, neither Schaffner nor its subsidiaries assume any liability whatsoever for any errors or inaccuracies of this document and the consequences thereof. Published specifications are subject to change without notice. Product suitability for any area of application must ultimately be determined by the customer. In all cases, products must never be operated outside their published specifications. Schaffner does not guarantee the availability of all published products. This disclaimer shall be governed by substantive Swiss law and resulting disputes shall be settled by the courts at the place of business of Schaffner Holding AG. Latest publications and a complete disclaimer can be downloaded from the Schaffner website. All trademarks recognized.