

IEC inlet filters FN 9233E

High performance IEC inlet filter with earth line choke

SCHAFFNER

energy efficiency and reliability



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

Approvals



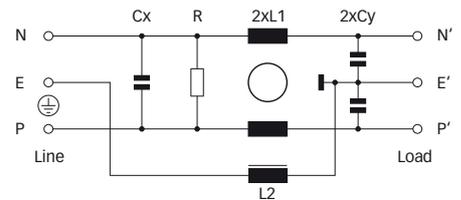
(CQC approval pending)



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):	1,710,000 hours

Typical electrical schematic



The FN 9233E IEC inlet filter combines an IEC inlet and mains filter with excellent filter attenuation in a small form factor. The FN 9233E high performance power entry module offers additional EMI suppression on the earth line. Choosing the FN 9233E 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 without additional earth line choke please consult the FN 9233 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.
- Without earth line choke see FN 9233 data sheet.
- Optional low leakage currents for medical applications.
- 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

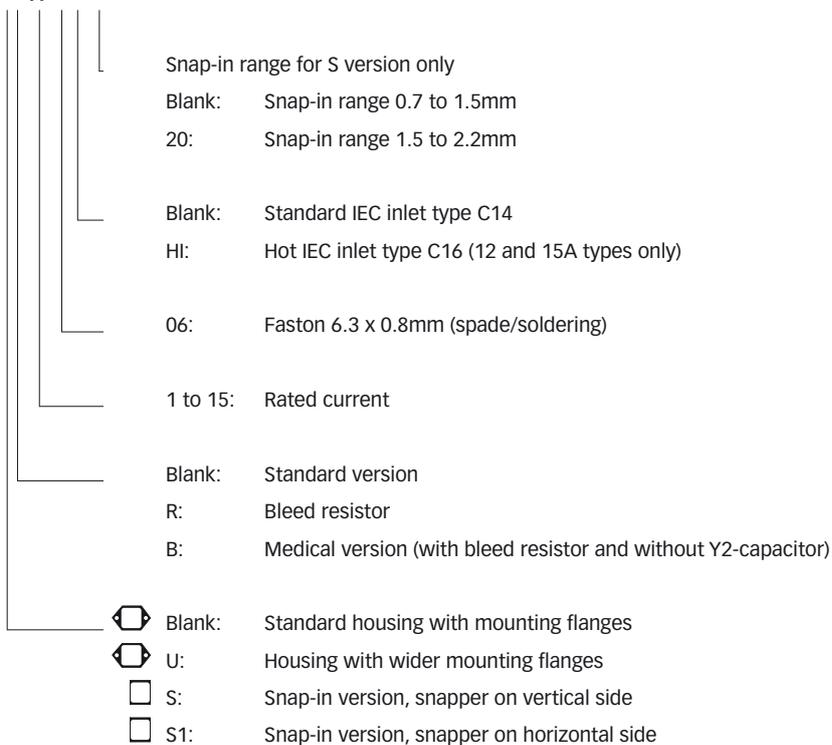
Filter selection table

Filter	Rated current @ 50°C (25°C)	Leakage current* @ 250VAC/50Hz	Inductance		Capacitance		Resistance R	Output connections	Weight
			L1	L2	Cx	Cy			
	[A]	[μA]	[mH]	[mH]	[μF]	[nF]	[kΩ]		[g]
FN 9233Ex-1-06	1 (1.2)	373	22.5	0.4	0.1	2.2		-06	46
FN 9233Ex-3-06	3 (3.5)	373	4.6	0.4	0.1	2.2		-06	46
FN 9233Ex-6-06	6 (7.2)	373	1.6	0.4	0.1	2.2		-06	46
FN 9233Ex-8-06	8 (10.6)	373	0.9	0.4	0.1	2.2		-06	46
FN 9233Ex-10-06	10 (11.6)	373	0.45	0.4	0.1	2.2		-06	46
FN 9233Ex-12-06	12 (12)	373	0.27	0.1	0.1	2.2		-06	46
FN 9233Ex-15-06	15 (15)	373	0.2	0.1	0.1	2.2		-06	46
FN 9233Ex-12-06HI	12 (12)	373	0.27	0.1	0.1	2.2		-06	46
FN 9233Ex-15-06HI	15 (15)	373	0.2	0.1	0.1	2.2		-06	46
FN 9233ExR-1-06	1 (1.2)	373	22.5	0.4	0.1	2.2	1000	-06	46
FN 9233ExR-3-06	3 (3.5)	373	4.6	0.4	0.1	2.2	1000	-06	46
FN 9233ExR-6-06	6 (7.2)	373	1.6	0.4	0.1	2.2	1000	-06	46
FN 9233ExR-8-06	8 (10.6)	373	0.9	0.4	0.1	2.2	1000	-06	46
FN 9233ExR-10-06	10 (11.6)	373	0.45	0.4	0.1	2.2	1000	-06	46
FN 9233ExR-12-06	12 (12)	373	0.27	0.1	0.1	2.2	1000	-06	46
FN 9233ExR-15-06	15 (15)	373	0.2	0.1	0.1	2.2	1000	-06	46
FN 9233ExR-12-06HI	12 (12)	373	0.27	0.1	0.1	2.2	1000	-06	46
FN 9233ExR-15-06HI	15 (15)	373	0.2	0.1	0.1	2.2	1000	-06	46
FN 9233ExB-1-06	1 (1.2)	2	22.5	0.4	0.1		1000	-06	46
FN 9233ExB-3-06	3 (3.5)	2	4.6	0.4	0.1		1000	-06	46
FN 9233ExB-6-06	6 (7.2)	2	1.6	0.4	0.1		1000	-06	46
FN 9233ExB-8-06	8 (10.6)	2	0.9	0.4	0.1		1000	-06	46
FN 9233ExB-10-06	10 (11.6)	2	0.45	0.4	0.1		1000	-06	46
FN 9233ExB-12-06	12 (12)	2	0.27	0.1	0.1		1000	-06	46
FN 9233ExB-15-06	15 (15)	2	0.2	0.1	0.1		1000	-06	46
FN 9233ExB-12-06HI	12 (12)	2	0.27	0.1	0.1		1000	-06	46
FN 9233ExB-15-06HI	15 (15)	2	0.2	0.1	0.1		1000	-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 9233Exx-yy-...HI-zz

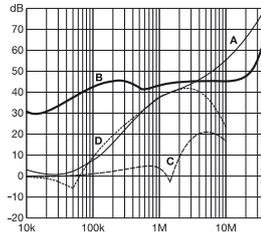


For example: FN 9233E-15-06, FN 9233ES1B-10-06-20, FN 9233ER-12-06HI, FN 9233EUB-8-06-20

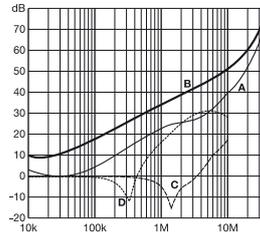
Typical filter attenuation

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

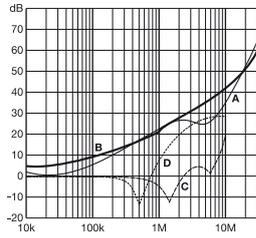
1 and 3A types



6 to 10A types

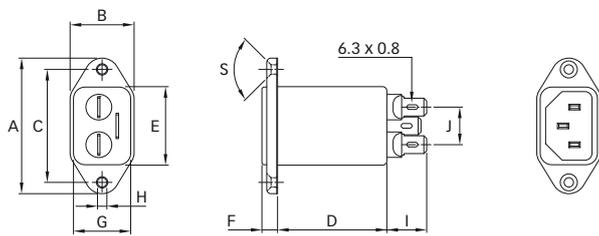


12 and 15A types

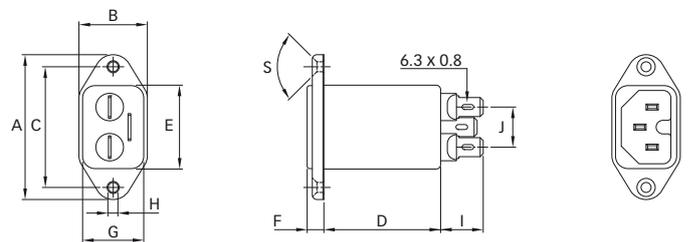


Mechanical data

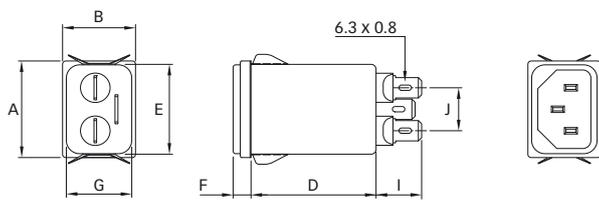
FN 9233E



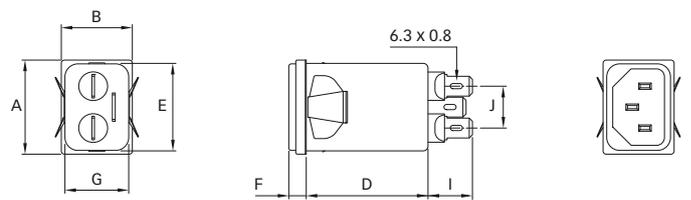
FN 9233E-HI



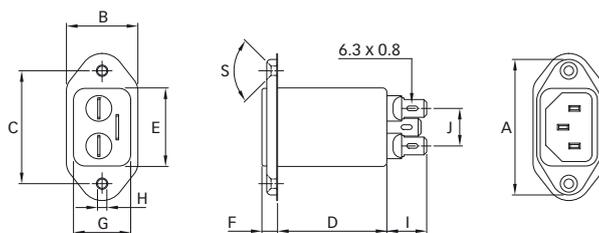
FN 9233ES



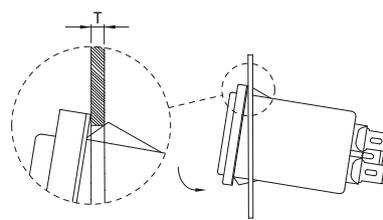
FN 9233ES1



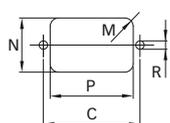
FN 9233EU



Installation



Panel cut out



Dimensions

	FN 9233E	FN 9233EU	FN 9233ES	FN 9233ES1	FN 9233E-HI
A	48	51.85	29.9	29.9	48
B	22.5	25	22.4	22.4	22.5
C	40 ±0.2	40 ±0.2			40 ±0.2
D	46.8	46.8	46.8	46.8	46.8
E	27.8	27.8	27.8	27.8	27.8
F	5.5	5.5	5.5	5.5	5.5
G	20.1	20.1	20.1	20.1	20.1
H	Ø3.3	Ø3.3			Ø3.3
I	14	14.1	14	14	14
J	13.3	13.3	13.3	13.3	13.3
M	R ≤ 3	R ≤ 3	R ≤ 1.5	R ≤ 1.5	R ≤ 3
N	21.5	21.5	20.8	21.9	21.5
P	28.5	28.5	29.4	28.5	28.5
R	M3	M3			M3
S	90°	90°			90°
T*			0.7 - 1.5	0.7 - 1.5	
T*			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