

IEC Inlet Filters FN 9222E

General Performance IEC Inlet Filter with Earth Line Choke

SCHAFNER
energy efficiency and reliability



- Rated currents up to 15A
- Excellent performance/size ratio
- Integrated earth line choke
- Optional medical versions (B type) according to IEC/EN 60601-1
- Snap-in versions (S and S1 type)
- Optional wide mounting flanges

Approvals



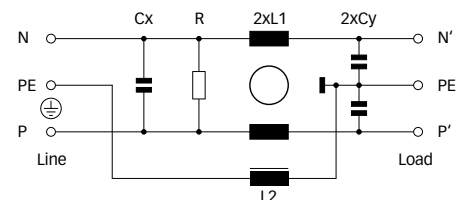
except HI-types



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 → PE 2000VAC for 2 sec (standard types) P → PE 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):	1,610,000 hours

Typical electrical schematic



The FN 9222E IEC inlet filter combines an IEC inlet and mains filter with excellent filter attenuation in a small form factor and integrated earth line choke. Choosing the FN 9222E 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.

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 medical versions (B type) comply with the requirements of 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.
- Without earth line choke see FN 9222 data sheet.
- 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	Output connections 	Weight [g]
	[A]	[μA]	L1 [mH]	L2 [mH]	Cx [μF]	Cy [nF]	R [kΩ]		
FN 9222Ex-1-06	1 (1.2)	373	12	0.4	0.1	2.2		-06	46
FN 9222Ex-3-06	3 (3.5)	373	2.5	0.4	0.1	2.2		-06	46
FN 9222Ex-6-06	6 (7.2)	373	0.78	0.4	0.1	2.2		-06	46
FN 9222Ex-8-06	8 (10.6)	373	0.5	0.4	0.1	2.2		-06	46
FN 9222Ex-10-06	10 (11.6)	373	0.225	0.1	0.1	2.2		-06	46
FN 9222Ex-12-06	12 (12)	373	0.11	0.1	0.1	2.2		-06	46
FN 9222Ex-15-06	15 (15)	373	0.075	0.1	0.1	2.2		-06	46
FN 9222Ex-12-06HI	12 (12)	373	0.11	0.1	0.1	2.2		-06	46
FN 9222Ex-15-06HI	15 (15)	373	0.075	0.1	0.1	2.2		-06	46
FN 9222ExR-1-06	1 (1.2)	373	12	0.4	0.1	2.2	1000	-06	46
FN 9222ExR-3-06	3 (3.5)	373	2.5	0.4	0.1	2.2	1000	-06	46
FN 9222ExR-6-06	6 (7.2)	373	0.78	0.4	0.1	2.2	1000	-06	46
FN 9222ExR-8-06	8 (10.6)	373	0.5	0.4	0.1	2.2	1000	-06	46
FN 9222ExR-10-06	10 (11.6)	373	0.225	0.1	0.1	2.2	1000	-06	46
FN 9222ExR-12-06	12 (12)	373	0.11	0.1	0.1	2.2	1000	-06	46
FN 9222ExR-15-06	15 (15)	373	0.075	0.1	0.1	2.2	1000	-06	46
FN 9222ExR-12-06HI	12 (12)	373	0.11	0.1	0.1	2.2	1000	-06	46
FN 9222ExR-15-06HI	15 (15)	373	0.075	0.1	0.1	2.2	1000	-06	46
FN 9222ExB-1-06	1 (1.2)	2	12	0.4	0.1		1000	-06	46
FN 9222ExB-3-06	3 (3.5)	2	2.5	0.4	0.1		1000	-06	46
FN 9222ExB-6-06	6 (7.2)	2	0.78	0.4	0.1		1000	-06	46
FN 9222ExB-8-06	8 (10.6)	2	0.5	0.4	0.1		1000	-06	46
FN 9222ExB-10-06	10 (11.6)	2	0.225	0.1	0.1		1000	-06	46
FN 9222ExB-12-06	12 (12)	2	0.11	0.1	0.1		1000	-06	46
FN 9222ExB-15-06	15 (15)	2	0.075	0.1	0.1		1000	-06	46
FN 9222ExB-12-06HI	12 (12)	2	0.11	0.1	0.1		1000	-06	46
FN 9222ExB-15-06HI	15 (15)	2	0.075	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 9222Exx-yy-...HI-zz

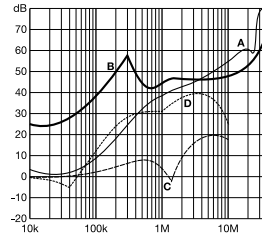
		Snap-in range for S version only
	Blank:	Snap-in range 0.7 to 1.5mm
	20:	Snap-in range 1.5 to 2.2mm
	Blank:	Standard IEC inlet type C14
	HI:	Hot IEC inlet type C16 (12 and 15A types only)
	06:	Faston 6.3 x 0.8mm (spade/soldering)
	1 to 15:	Rated current
	Blank:	Standard version
	R:	Bleed resistor
	B:	Medical version (with bleed resistor and without Y2-capacitor)
	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 9222E-15-06, FN 9222ES1B-10-06-20, FN 9222ER-12-06HI, FN 9222EUB-8-06-20

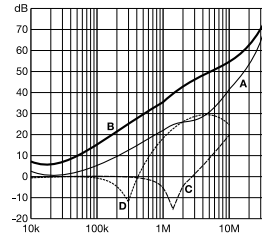
Typical filter attenuation

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

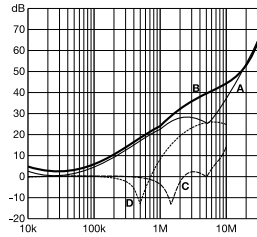
1 and 3A types



6 to 10A types

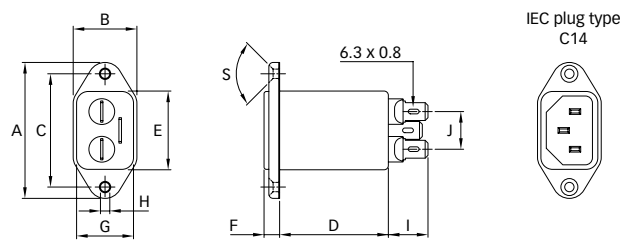


12 and 15A types

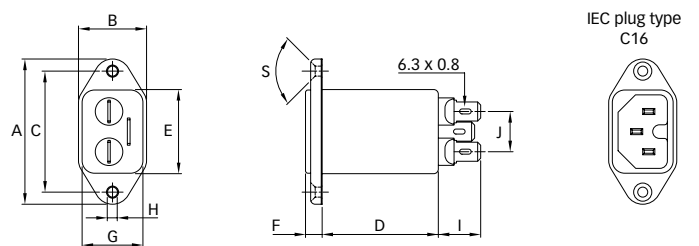


Mechanical data

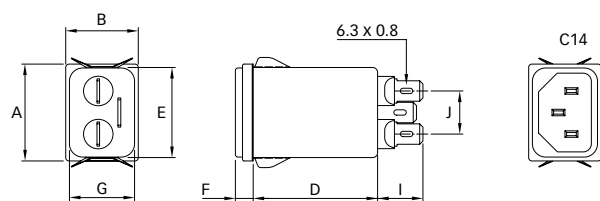
FN 9222E



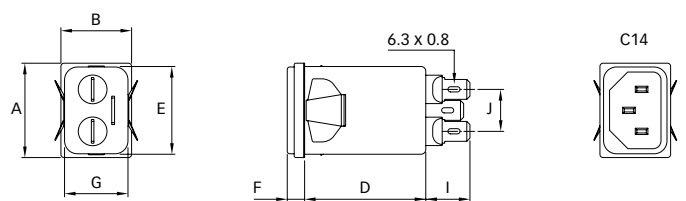
FN 9222E-HI



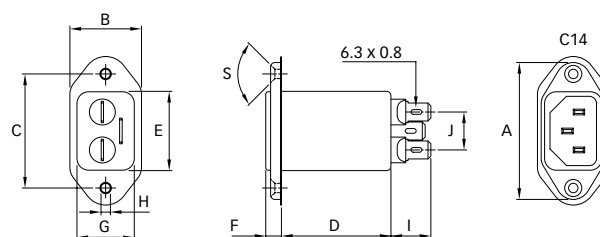
FN 9222ES



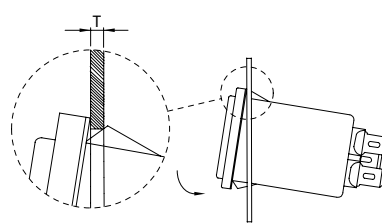
FN 9222ES1



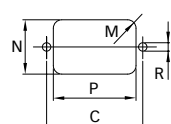
FN 9222EU



Installation



Panel cut out



Dimensions

	FN 9222E	FN 9222EU	FN 9222ES	FN 9222ES1	FN 9222E-HI
A	48	53	29.9	29.9	48
B	22.5	30	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	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

**Headquarters and
global innovation and
development center**

Schaffner Group
Nordstrasse 11
4542 Luterbach
Switzerland
T +41 32 681 66 26
F +41 32 681 66 30
info@schaffner.ch
www.schaffner.com

Sales and application centers

China

Schaffner EMC Ltd. Shanghai
Building 11, Lane 1365
East Kangqiao Road
Shanghai 201319
T +86 21 6813 9855
F +86 21 6813 9811
cschina@schaffner.com
www.schaffner.com

Germany

Schaffner Deutschland GmbH
Schoemperlenstrasse 12B
76185 Karlsruhe
T +49 721 56910
F +49 721 569110
germanysales@schaffner.com

Finland

Schaffner Oy
Tynninkuja 7
08700 Lohja
T +358 19 35 72 71
F +358 19 32 66 10
finlandsales@schaffner.com

France

Schaffner EMC S.A.S.
112, Quai de Bezons
95103 Argenteuil
T +33 1 34 34 30 60
F +33 1 39 47 02 28
francesales@schaffner.com

Italy

Schaffner EMC S.r.l.
Via Galileo Galilei, 47
20092 Cinisello Balsamo (MI)
T +39 02 66 04 30 45/47
F +39 02 61 23 943
italysales@schaffner.com

Japan

Schaffner EMC K.K.
Mitsui-Seimei Sangenjaya Bldg. 7F
1-32-12, Kamiyama, Setagaya-ku
Tokyo 154-0011
T +81 3 5712 3650
F +81 3 5712 3651
japansales@schaffner.com
www.schaffner.jp

Sweden

Schaffner EMC AB
Turebergstorg 1, 6
19147 Sollentuna
T +46 8 5792 1121 / 22
F +46 8 92 96 90
swedensales@schaffner.com

Switzerland

Schaffner EMV AG
Nordstrasse 11
4542 Luterbach
T +41 32 681 66 26
F +41 32 681 66 41
sales@schaffner.ch

Singapore

Schaffner EMC Pte Ltd.
Blk 3015A Ubi Road 1
05-09 Kampong Ubi Industrial
Estate
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 la Moraleja,
Alcobendas
28109 Madrid
T +34 618 176 133
spainsales@schaffner.com

Taiwan

Schaffner EMV Ltd.
6th Floor, No 413
Rui Guang Road
Neihu District
Taipei City 114
T +886 2 87525050
F +886 2 87518086
taiwansales@schaffner.com

Thailand

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

UK

Schaffner Ltd.
5 Ashville Way
Molly Millars Lane
Wokingham
Berkshire RG41 2PL
T +44 118 9770070
F +44 118 9792969
uksales@schaffner.com
www.schaffner.uk.com

USA

Schaffner EMC Inc.
52 Mayfield Avenue
Edison, New Jersey 08837
T +1 732 225 9533
F +1 732 225 4789
usasales@schaffner.com
www.schaffner.com/us

To find your local partner within
Schaffner's global network, please go to

www.schaffner.com

May 2011

© 2011 Schaffner EMC.
Specifications subject to change without
notice. All trademarks recognized.

Schaffner is an ISO-registered company.
Its products are designed and manufac-
tured under the strict quality and environ-
mental requirements of the ISO 9001 and
ISO 14001 standards.

This document has been carefully
checked. However, Schaffner does not
assume any liability for errors or inac-
curacies.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Schaffner:](#)

[FN9222ES1-15-06-20](#)