

# General Performance EMC/EMI Filter with Earth Line Choke



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



## Approvals



(CQC except HI-types)

## Performance indicators

Attenuation performance



Rated current [A]



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.

## Technical specifications

<b>Maximum continuous operating voltage</b>	250 VAC, 50/60 Hz
<b>Operating frequency</b>	dc to 400Hz
<b>Rated currents</b>	1 to 15 A @ 50 °C max.
<b>Approvals by rated current</b>	1 to 10 A (ENEC, CQC) 1 to 15 A (UL, CSA)
<b>High potential test voltage</b>	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
<b>Protection category</b>	IP40 according to IEC 60529
<b>Temperature range (operation and storage)</b>	-25 °C to +85 °C (25/85/21)
<b>Design corresponding to</b>	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
<b>Flammability corresponding to</b>	UL 94 V-2 or better
<b>MTBF @ 40°C/230V (Mil-HB-217F)</b>	1,610,000 hours

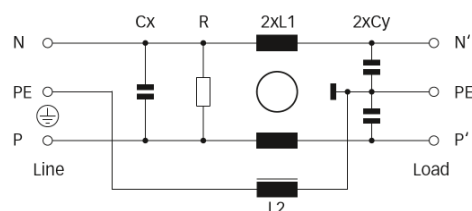
## Features and benefits

- | Exceptional conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior
- | Rear/front or snap-in mounting
- | Optional 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 electrical schematic

- | 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

## Typical electrical schematic



## Filter selection table

Filter	Rated current @ 50 °C (25 °C)	Leakage current* @ 250 VAC/50 Hz	Inductance		Capacitance		Resistance R	Output connections 	Weight [g]
			L1 [mH]	L2 [mH]	Cx [µF]	Cy [nF]			
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)

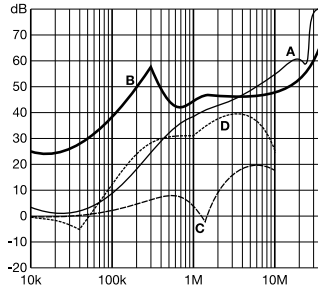
 Blank: Standard housing with mounting flanges U: Housing with wider mounting flanges S: Snap-in version, snapper on vertical side S1: Snap-in version, snapper on horizontal side

For example: FN 9222E-15-06, FN 9222ES1B-10-06-20, FN 9222ER-12-06HI, FN 9222EUB-8-06-20

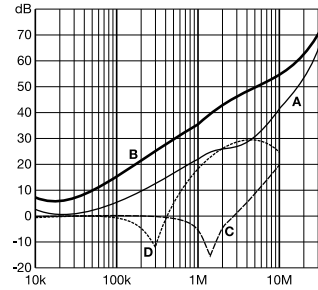
### Typical filter attenuation

Per CISPR 17; A = 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

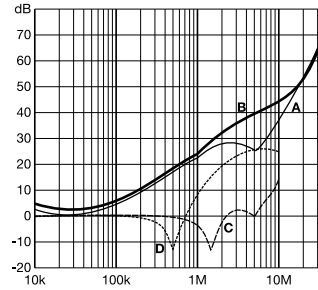
1 and 3 A types



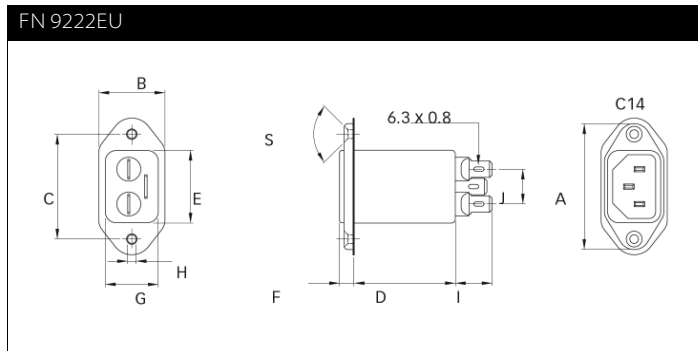
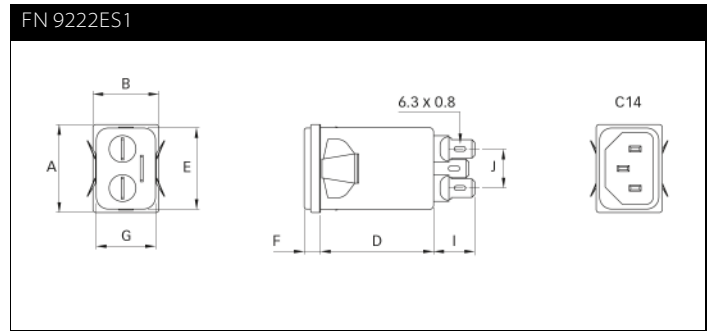
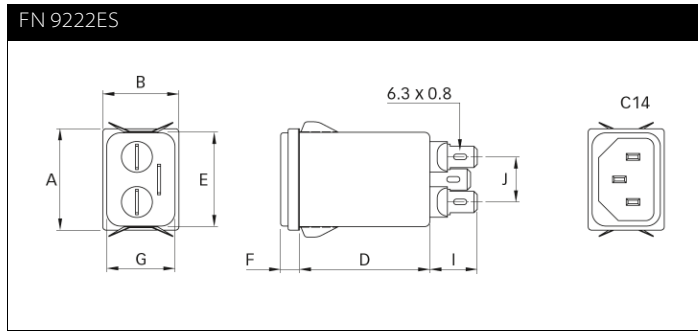
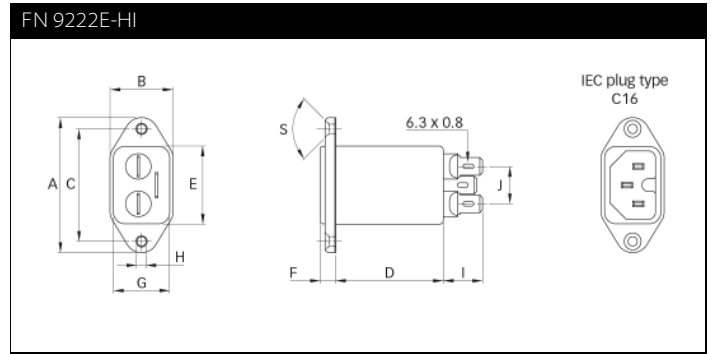
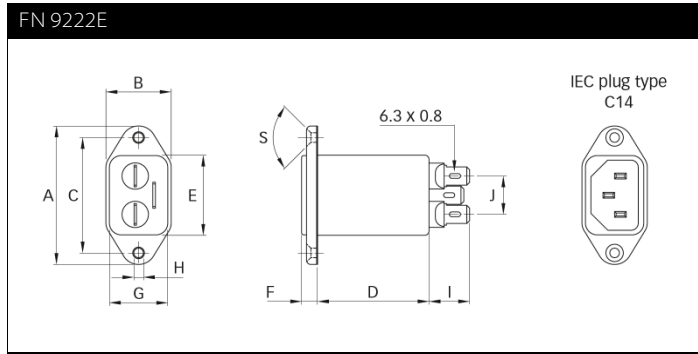
6 to 10 A types

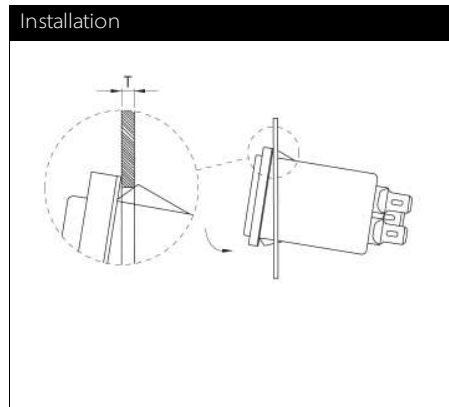
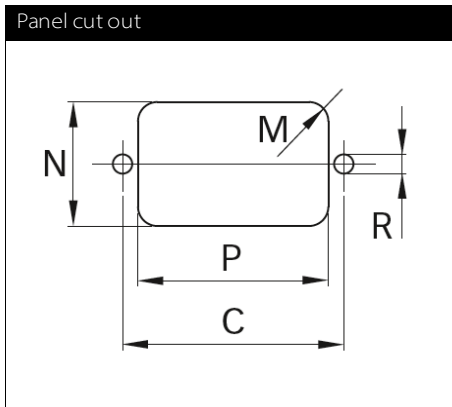


12 and 15 A types



### Mechanical data





## Dimensions

	FN 9222E	FN 9222EU	FN 9222ES	FN 9222ES1	FN 9222E-HI
<b>A</b>	48	53	29.9	29.9	48
<b>B</b>	22.5	25	22.4	22.4	22.5
<b>C</b>	40 ±0.2	40 ±0.2			40 ±0.2
<b>D</b>	46.8	46.8	46.8	46.8	46.8
<b>E</b>	27.8	27.8	27.8	27.8	27.8
<b>F</b>	5.5	5.5	5.5	5.5	5.5
<b>G</b>	20.1	20.1	20.1	20.1	20.1
<b>H</b>	Ø 3.3	Ø 3.3			Ø 3.3
<b>I</b>	14	14	14	14	14
<b>J</b>	13.3	13.3	13.3	13.3	13.3
<b>M</b>	R ≤ 3	R ≤ 3	R ≤ 1.5	R ≤ 1.5	R ≤ 3
<b>N</b>	21.5	21.5	20.8	21.9	21.5
<b>P</b>	28.5	28.5	29.4	28.5	28.5
<b>R</b>	M3	M3			M3
<b>S</b>	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 = 25.4 mm  
Tolerances according: ISO 2768-m / EN 22768-m

Please visit [www.schaffner.com](http://www.schaffner.com) to find more details on filter connectors.



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