

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



Performance indicators

Attenuation performance



Rated current [A]



Approvals



(CQC except HI-types)

The FN 9222 E 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 9222 E 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

Maximum continuous operating voltage	250 VAC, 50/60 Hz
Operating frequency	dc to 400 Hz dc to 400 Hz
Rated currents	1 to 15 A @ 50°C max.
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)	1,610,000 hours

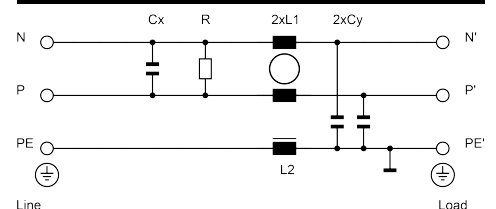
Features and benefits

- 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 (5 °C)	Leakage current* @ 250 VAC/50 Hz	Inductance		Capacitance		Resistance R	Output connections 	Weight [g]
			L1 [mH]	L2 [mH]	Cx [µF]	Cy [nF]			
FN 9222 Ex-1-06	1 (1.2)	373	12	0.4	0.1	2.2		-06	46
FN 9222 Ex-3-06	3 (3.5)	373	2.5	0.4	0.1	2.2		-06	46
FN 9222 Ex-6-06	6 (7.2)	373	0.78	0.4	0.1	2.2		-06	46
FN 9222 Ex-8-06	8 (10.6)	373	0.5	0.4	0.1	2.2		-06	46
FN 9222 Ex-10-06	10 (11.6)	373	0.225	0.1	0.1	2.2		-06	46
FN 9222 Ex-12-06	12 (12)	373	0.11	0.1	0.1	2.2		-06	46
FN 9222 Ex-15-06	15 (15)	373	0.075	0.1	0.1	2.2		-06	46
FN 9222 Ex-12-06HI	12 (12)	373	0.11	0.1	0.1	2.2		-06	46
FN 9222 Ex-15-06HI	15 (15)	373	0.075	0.1	0.1	2.2		-06	46
FN 9222 ExR-1-06	1 (1.2)	373	12	0.4	0.1	2.2	1000	-06	46
FN 9222 ExR-3-06	3 (3.5)	373	2.5	0.4	0.1	2.2	1000	-06	46
FN 9222 ExR-6-06	6 (7.2)	373	0.78	0.4	0.1	2.2	1000	-06	46
FN 9222 ExR-8-06	8 (10.6)	373	0.5	0.4	0.1	2.2	1000	-06	46
FN 9222 ExR-10-06	10 (11.6)	373	0.225	0.1	0.1	2.2	1000	-06	46
FN 9222 ExR-12-06	12 (12)	373	0.11	0.1	0.1	2.2	1000	-06	46
FN 9222 ExR-15-06	15 (15)	373	0.075	0.1	0.1	2.2	1000	-06	46
FN 9222 ExR-12-06HI	12 (12)	373	0.11	0.1	0.1	2.2	1000	-06	46
FN 9222 ExR-15-06HI	15 (15)	373	0.075	0.1	0.1	2.2	1000	-06	46
FN 9222 ExB-1-06	1 (1.2)	2	12	0.4	0.1		1000	-06	46
FN 9222 ExB-3-06	3 (3.5)	2	2.5	0.4	0.1		1000	-06	46
FN 9222 ExB-6-06	6 (7.2)	2	0.78	0.4	0.1		1000	-06	46
FN 9222 ExB-8-06	8 (10.6)	2	0.5	0.4	0.1		1000	-06	46
FN 9222 ExB-10-06	10 (11.6)	2	0.225	0.1	0.1		1000	-06	46
FN 9222 ExB-12-06	12 (12)	2	0.11	0.1	0.1		1000	-06	46
FN 9222 ExB-15-06	15 (15)	2	0.075	0.1	0.1		1000	-06	46
FN 9222 ExB-12-06HI	12 (12)	2	0.11	0.1	0.1		1000	-06	46
FN 9222 ExB-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

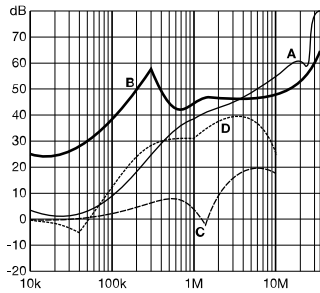
- Blank: Snap-in range for S version only
- Blank: Snap-in range 0.7 to 1.5mm
- 20: Snap-in range 1.5 to 2.2mm
- Blank: Standard IEC inlet type C14
- HI: Hot IEC inlet type C16 (12 and 15A types only)
- 06: Faston 6.3 x 0.8mm (spade/soldering)
- 1 to 15: Rated current
- Blank: Standard version
- R: Bleed 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 9222 E-15-06, FN 9222 ES1B-10-06-20, FN 9222 EUB-8-06-20

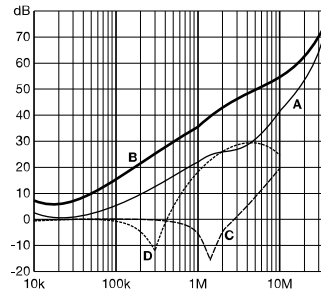
Typical filter attenuation

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

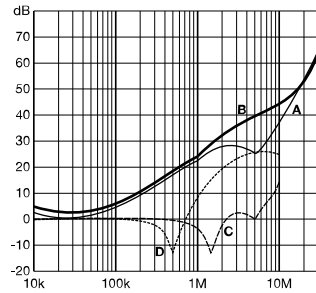
1 and 3 A types



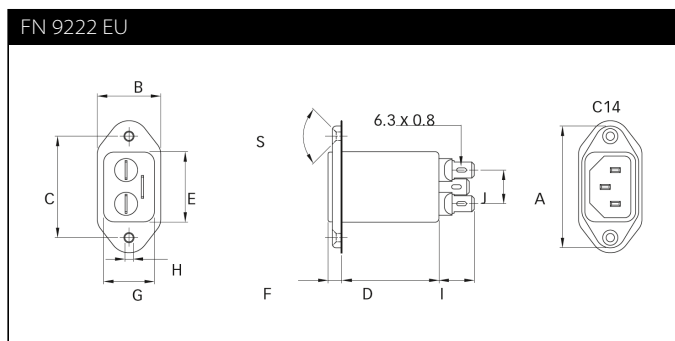
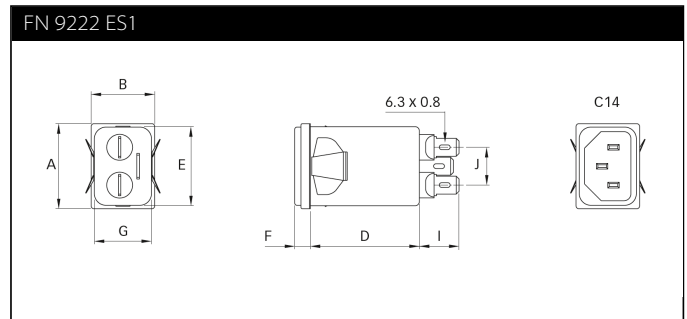
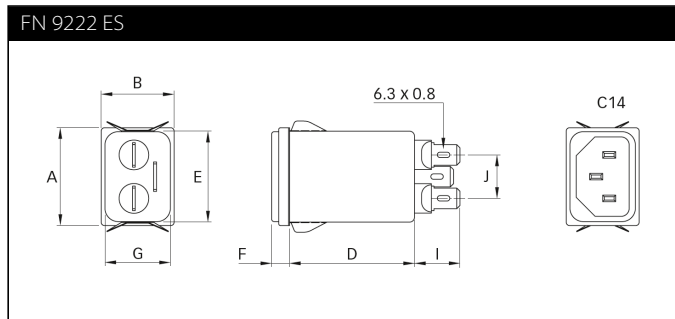
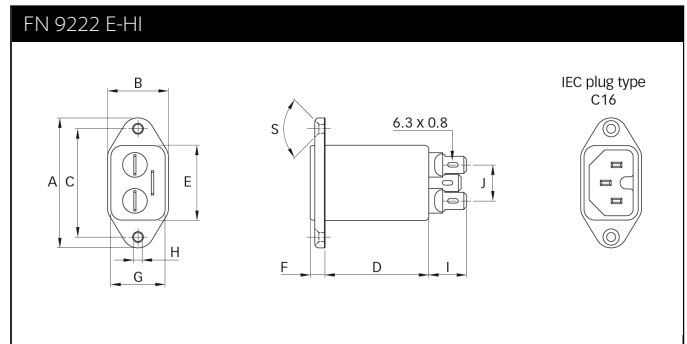
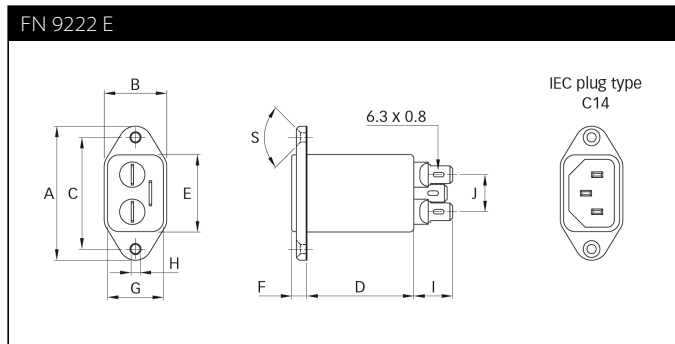
6 to 10 A types

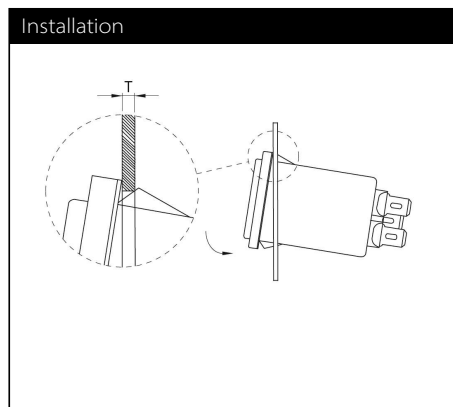
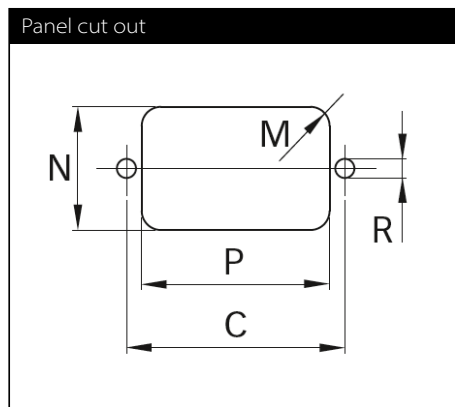


12 and 15 A types



Mechanical data





Dimensions

	FN 9222 E	FN 9222 EU	FN 9222 ES	FN 9222 ES1	FN 9222 E-HI
A	48	48	29.9	29.9	48
B	22.4	25	22.4	22.4	22.4
C	40 ±0.2	40 ±0.2			40 ±0.2
D	46.8	46.7	46.8	46.8	46.8
E	27.8	27.9	27.9	27.9	27.8
F	5.7	5.7	5.7	5.7	5.7
G	20.5	20.5	20.5	20.5	20.5
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 = 25.4 mm
Tolerances according: ISO 2768-m/EN 22768-m

Please visit www.schaffner.com to find more details on filter connectors.



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