

IEC Inlet Filters FN 9222

General Performance IEC Inlet Filter

SCHAFNER
energy efficiency and reliability



- Rated currents up to 20A
- Excellent performance/size ratio
- Complies with IEC/EN 60601-1
- Snap-in versions (S and S1 type)
- Hot inlet versions (HI type)
- Optional overvoltage protection (Z type)

Approvals



RoHS

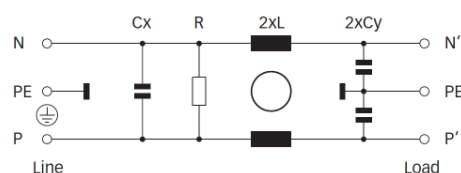
(CQC except HI-types)

Technical specifications

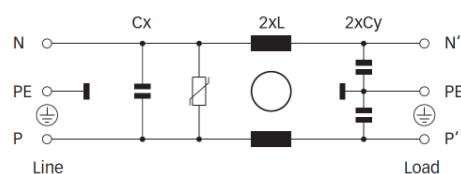
Approvals by rated current:	1 to 10A (ENEC, CQC) 16A (ENEC, CQC) for 16 and 20A types 1 to 20A (UL, CSA)
Design corresponding to:	UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (X to XX A, not Z types)
Flammability corresponding to:	UL 94V-2 or better
High potential test voltage:	P → PE 2000VAC for 2 sec (standard types) P → PE 2500VAC for 2 sec (B types) P → N 1000VAC for 2 sec (1 to 10A types, not Z types) P → N 250VAC for 2 sec (all Z types) P → N 1100VDC for 2 sec (16 and 20A types, not Z types)
Maximum continuous operating voltage:	250VAC, 50/60Hz
MTBF @ 40°C/230V (Mil-HB-217F):	≤15A: 3,040,000 hours ≥16A: 2,256,000 hours
Operating frequency:	dc to 400Hz
Protection category:	IP40 according to IEC 60529
Rated currents:	1 to 20 A @ 50°C
Surge pulse protection (optional):	2kV, IEC 61000-4-5
Temperature range (operation and storage):	-25°C to +85°C (25/85/21)

Typical electrical schematic

Standard, R and B types



Z types



The FN 9222 IEC inlet filter combines an IEC inlet and mains filter with excellent filter attenuation in a small form factor. Choosing the FN 9222 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.
- Wide mounting flanges available.
- Optional medical versions (B type) comply with the requirements of IEC/EN 60601-1 for creepage and clearance, leakage current and high potential testing.
- 12 and 15A types with hot inlet available.
- Optional surge pulse protection.
- 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 L	Capacitance Cx Cy		Resistance R	Output connections		Weight
	[A]	[μA]	[mH]	[μF]	[nF]	[kΩ]			[g]
FN 9222x-1-..	1 (1.2)	373	12	0.1	2.2		-06	-07	40
FN 9222x-3-..	3 (3.5)	373	2.5	0.1	2.2		-06	-07	40
FN 9222x-6-..	6 (7.2)	373	0.78	0.1	2.2		-06	-07	40
FN 9222x-8-..	8 (10.6)	373	0.5	0.1	2.2		-06	-07	40
FN 9222x-10-..	10 (11.6)	373	0.225	0.1	2.2		-06	-07	40
FN 9222x-12-..	12 (12)	373	0.11	0.1	2.2		-06	-07	40
FN 9222x-15-..	15 (15)	373	0.075	0.1	2.2		-06	-07	40
FN 9222x-12-..HI	12 (12)	373	0.11	0.1	2.2		-06	-07	40
FN 9222x-15-..HI	15 (15)	373	0.075	0.1	2.2		-06	-07	40
FN 9222xR-1-..	1 (1.2)	373	12	0.1	2.2	1000	-06	-07	40
FN 9222xR-3-..	3 (3.5)	373	2.5	0.1	2.2	1000	-06	-07	40
FN 9222xR-6-..	6 (7.2)	373	0.78	0.1	2.2	1000	-06	-07	40
FN 9222xR-8-..	8 (10.6)	373	0.5	0.1	2.2	1000	-06	-07	40
FN 9222xR-10-..	10 (11.6)	373	0.225	0.1	2.2	1000	-06	-07	40
FN 9222xR-12-..	12 (12)	373	0.11	0.1	2.2	1000	-06	-07	40
FN 9222xR-15-..	15 (15)	373	0.075	0.1	2.2	1000	-06	-07	40
FN 9222xR-16-06	16 (18.5)	373	0.54	0.33	2.2	1000	-06		100
FN 9222xR-20-06	20 (23)	373	0.4	0.33	2.2	1000	-06		100
FN 9222xR-12-..HI	12 (12)	373	0.11	0.1	2.2	1000	-06	-07	40
FN 9222xR-15-..HI	15 (15)	373	0.075	0.1	2.2	1000	-06	-07	40
FN 9222xB-1-..	1 (1.2)	2	12	0.1		1000	-06	-07	40
FN 9222xB-3-..	3 (3.5)	2	2.5	0.1		1000	-06	-07	40
FN 9222xB-6-..	6 (7.2)	2	0.78	0.1		1000	-06	-07	40
FN 9222xB-8-..	8 (10.6)	2	0.5	0.1		1000	-06	-07	40
FN 9222xB-10-..	10 (11.6)	2	0.225	0.1		1000	-06	-07	40
FN 9222xB-12-..	12 (12)	2	0.11	0.1		1000	-06	-07	40
FN 9222xB-15-..	15 (15)	2	0.075	0.1		1000	-06	-07	40
FN 9222xB-16-06	16 (18.5)	2	0.54	0.33		1000	-06		100
FN 9222xB-20-06	20 (23)	2	0.4	0.33		1000	-06		100
FN 9222xB-12-..HI	12 (12)	2	0.11	0.1		1000	-06	-07	40
FN 9222xB-15-..HI	15 (15)	2	0.075	0.1		1000	-06	-07	40
FN 9222UZ-1-06	1 (1.2)	373	12	0.1	2.2		-06		43
FN 9222UZ-3-06	3 (3.5)	373	2.5	0.1	2.2		-06		43
FN 9222UZ-6-06	6 (7.2)	373	0.78	0.1	2.2		-06		43
FN 9222UZ-8-06	8 (10.6)	373	0.5	0.1	2.2		-06		43
FN 9222UZ-10-06	10 (11.6)	373	0.225	0.1	2.2		-06		43
FN 9222UZ-12-06	12 (12)	373	0.11	0.1	2.2		-06		43
FN 9222UZ-15-06	15 (15)	373	0.075	0.1	2.2		-06		43

* Maximum leakage under normal operating conditions. Note: if the neutral line is interrupted, worst case leakage could reach twice this level.

Product selector

FN 9222xx-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 (1 to 15A types), C20 (16 and 20A types)

HI:

Hot IEC inlet type C16 (12 and 15A types only)

06:

Faston 6.3 x 0.8mm (spade/soldering)

07:

Wire leads

1 to 20:

Rated current

Blank:

Standard version

R:

Bleed resistor

B:

Medical version (with bleed resistor and without Y2-capacitor)

Z:

Optional surge pulse protection with additional varistor (MOV)

(Z types have longer housings, only available for FN 9222UZ-yy-06)

Blank:

Standard housing with mounting flanges

U:

Housing with wider mounting flanges

S:

Snap-in version, snapper on vertical side (1 to 15A types only)

S1:

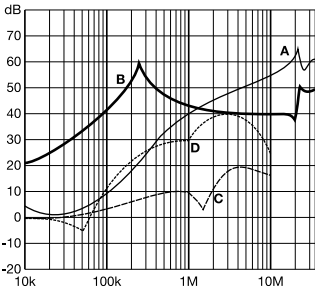
Snap-in version, snapper on horizontal side (1 to 15A types only)

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

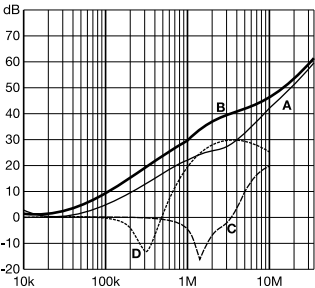
Typical filter attenuation

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

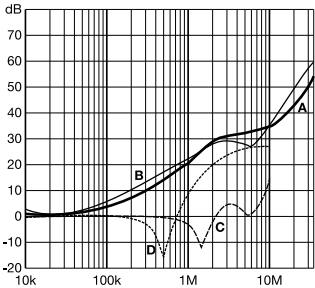
1 and 3A types



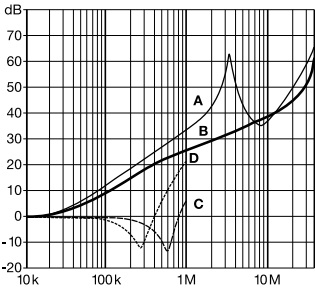
6 to 10A types



12 and 15A types

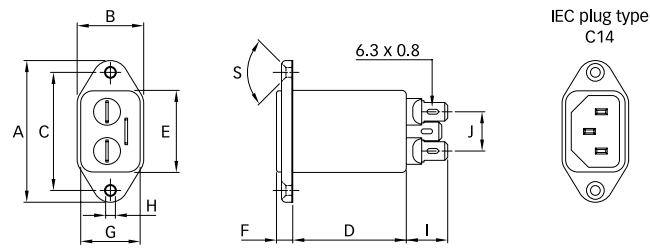


16 and 20A types

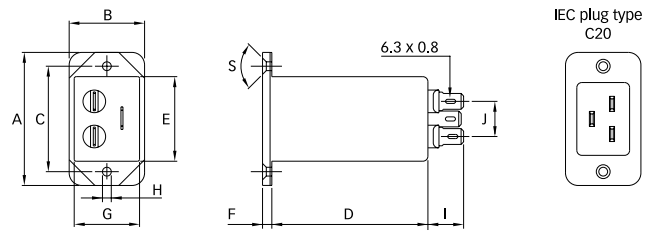


Mechanical data

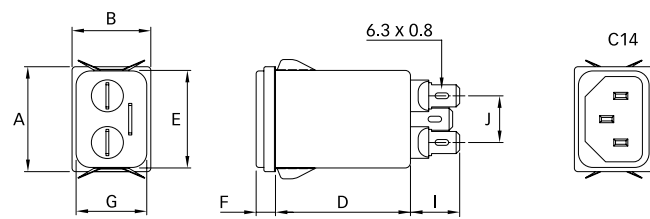
FN 9222 1 to 15A types



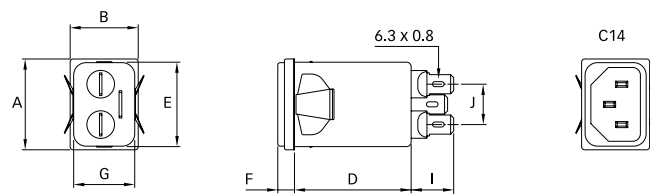
FN 9222, 16 and 20A types



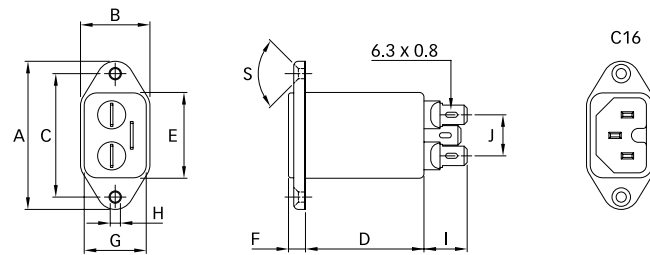
FN 9222S



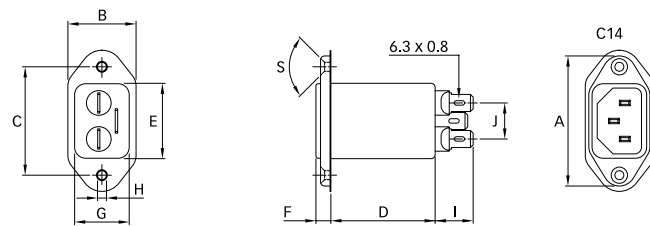
FN 9222S1



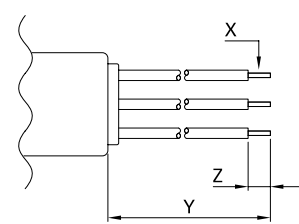
FN 9222-HI



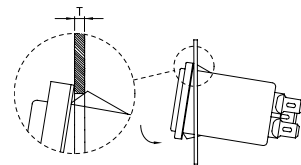
FN 9222U



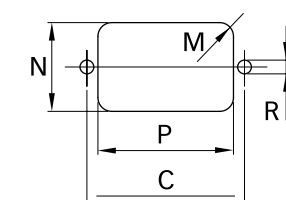
-07 connection style



Installation



Panel cut out



Dimensions

	FN 9222 1 to 8A	10 to 15A	16 and 20A	FN 9222U	FN 9222UZ	FN 9222S 1 to 8A	10 to 15A	FN 9222S1 1 to 8A	10 to 15A	FN 9222-HI 12 and 15A
A	48	48	53	51.85	51.85	29.9	29.9	29.9	29.9	48
B	22.5	22.5	30	25	25	22.4	22.4	22.4	22.4	22.5
C	40 ±0.2	40 ±0.2	42 ±0.2	40 ±0.2	40 ±0.2					40 ±0.2
D	38.4	38.4	66	38.25	46.8	38.4	38.4	38.4	38.4	38.4
E	27.8	27.8	34	27.8	27.8	27.8	27.8	27.8	27.8	27.8
F	5.5	5.5	4	5.5	5.5	5.5	5.5	5.5	5.5	5.5
G	20.1	20.1	26.5	20.1	20.1	20.1	20.1	20.1	20.1	20.1
H	Ø3.3	Ø3.3	Ø3.5	Ø3.3	Ø3.3					Ø3.3
I	14	14	14	14.1	14	14	14	14	14	14
J	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3	13.3
M	R ≤ 3	R ≤ 3	R ≤ 3	R ≤ 3	R ≤ 3	R ≤ 1.5	R ≤ 1.5	R ≤ 1.5	R ≤ 1.5	R ≤ 3
N	21.5	21.5	27	21.5	21.5	20.8	20.8	21.9	21.9	21.5
P	28.5	28.5	34.7	28.5	28.5	29.4	29.4	28.5	28.5	28.5
R	M3	M3	M3	M3	M3					M3
S	90°	90°	90°	90°	90°					90°
T*						0.7 - 1.5	0.7 - 1.5	0.7 - 1.5	0.7 - 1.5	
T*						1.5 - 2.2	1.5 - 2.2	1.5 - 2.2	1.5 - 2.2	
X	AWG 18	AWG 16				AWG 18	AWG 16	AWG 18	AWG 16	AWG 16
Y	160	160				160	160	160	160	160
Z	6	6				6	6	6	6	6

* 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

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