

General Performance IEC Inlet Filter



- Rated currents up to 20 A

- Excellent performance/size ratio

- Optional medical versions (B type) according to IEC/EN 60601-1

- Snap-in versions (S and S1 type)

- Hot inlet versions (HI type)

- Optional overvoltage protection (Z type)



Performance indicators

Attenuation performance



Rated current [A]



Approvals



RoHS

(CQC except HI-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 15 A types with hot inlet available

- Optional surge pulse protection

- Different output connections offering maximum flexibility for assembly

- Custom-specific versions are available on request

Technical specifications

| | |
|--|--|
| Maximum continuous operating voltage | 250 VAC, 50/60 Hz |
| Rated currents | 1 to 20 A @ 50°C |
| Approvals by rated current | 1 to 10 A (ENEC, CQC) 16 A (ENEC, CQC) for 16 and 20 A types 1 to 20 A (UL, CSA) |
| High potential test voltage | P → PE 2000 VAC for 2 sec (standard types) P → N 250 VAC for 2 sec (all Z types) P → N 1000 VAC for 2 sec (1 to 10 A types, not Z types) P → PE 2500 VAC for 2 sec (B types) P → N 1100 VDC for 2 sec (16 and 20 A types, not Z types) |
| 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 (X to XX A, not Z types) |
| Flammability corresponding to | UL 94 V-2 or better |
| Surge pulse protection (optional) | 2 kV, IEC 61000-4-5 |
| MTBF @ 40°C/230 V (Mil-HB-217F) | ≤15 A: 3,040,000 hours ≥16 A: 2,256,000 hours |

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

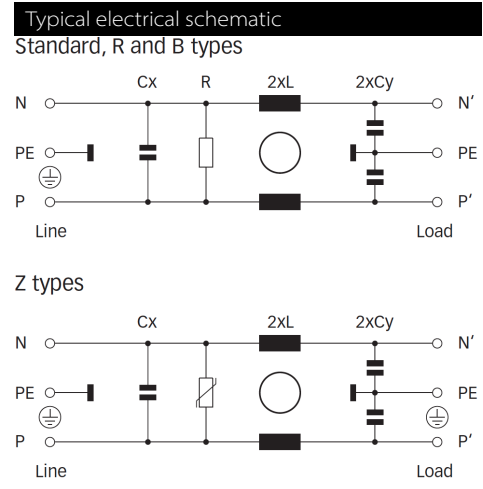
| Filter | Rated current @ 50°C (25°C) | Leakage current* @ 250 VAC/50 Hz | Inductance L | Capacitance | | Resistance R | Output connections | | Weight [g] |
|--------------------|--------------------------------|-------------------------------------|-----------------|-------------|------|-----------------|---|---|---------------|
| | | | | Cx | Cy | |  |  | |
| | [A] | [µA] | [mH] | [µF] | [nF] | [kΩ] | | | |
| FN 9222 x-1-.. | 1 (1.2) | 373 | 12 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-3-.. | 3 (3.5) | 373 | 2.5 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-6-.. | 6 (7.2) | 373 | 0.78 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-8-.. | 8 (10.6) | 373 | 0.5 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-10-.. | 10 (11.6) | 373 | 0.225 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-12-.. | 12 (12) | 373 | 0.11 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-15-.. | 15 (15) | 373 | 0.075 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-12-..HI | 12 (12) | 373 | 0.11 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 x-15-..HI | 15 (15) | 373 | 0.075 | 0.1 | 2.2 | | -06 | -07 | 40 |
| FN 9222 xR-1-.. | 1 (1.2) | 373 | 12 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-3-.. | 3 (3.5) | 373 | 2.5 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-6-.. | 6 (7.2) | 373 | 0.78 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-8-.. | 8 (10.6) | 373 | 0.5 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-10-.. | 10 (11.6) | 373 | 0.225 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-12-.. | 12 (12) | 373 | 0.11 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-15-.. | 15 (15) | 373 | 0.075 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 R-16-06 | 16 (18.5) | 373 | 0.54 | 0.33 | 2.2 | 1000 | -06 | | 100 |
| FN 9222 R-20-06 | 20 (23) | 373 | 0.4 | 0.33 | 2.2 | 1000 | -06 | | 100 |
| FN 9222 xR-12-..HI | 12 (12) | 373 | 0.11 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xR-15-..HI | 15 (15) | 373 | 0.075 | 0.1 | 2.2 | 1000 | -06 | -07 | 40 |
| FN 9222 xB-1-.. | 1 (1.2) | 2 | 12 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-3-.. | 3 (3.5) | 2 | 2.5 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-6-.. | 6 (7.2) | 2 | 0.78 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-8-.. | 8 (10.6) | 2 | 0.5 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-10-.. | 10 (11.6) | 2 | 0.225 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-12-.. | 12 (12) | 2 | 0.11 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-15-.. | 15 (15) | 2 | 0.075 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 RB-16-06 | 16 (18.5) | 2 | 0.54 | 0.33 | | 1000 | -06 | | 100 |
| FN 9222 RB-20-06 | 20 (23) | 2 | 0.4 | 0.33 | | 1000 | -06 | | 100 |
| FN 9222 xB-12-..HI | 12 (12) | 2 | 0.11 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 xB-15-..HI | 15 (15) | 2 | 0.075 | 0.1 | | 1000 | -06 | -07 | 40 |
| FN 9222 UZ-1-06 | 1 (1.2) | 373 | 12 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-3-06 | 3 (3.5) | 373 | 2.5 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-6-06 | 6 (7.2) | 373 | 0.78 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-8-06 | 8 (10.6) | 373 | 0.5 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-10-06 | 10 (11.6) | 373 | 0.225 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-12-06 | 12 (12) | 373 | 0.11 | 0.1 | 2.2 | | -06 | | 43 |
| FN 9222 UZ-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

- 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 (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)

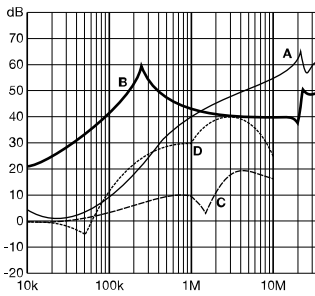


For example: FN 9222 E-15-06, FN 9222 ES1B-10-06-20, FN 9222 ER-12-06HI, FN 9222 EUB-8-06-20

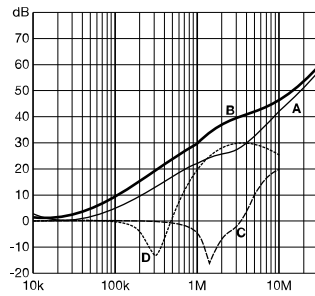
Typical filter attenuation

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

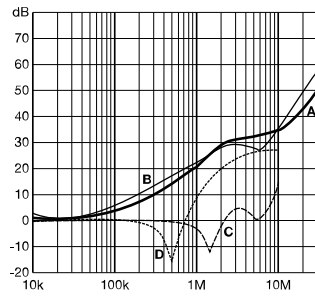
1 and 3 A types



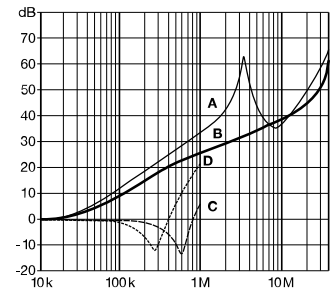
6 to 10 A types



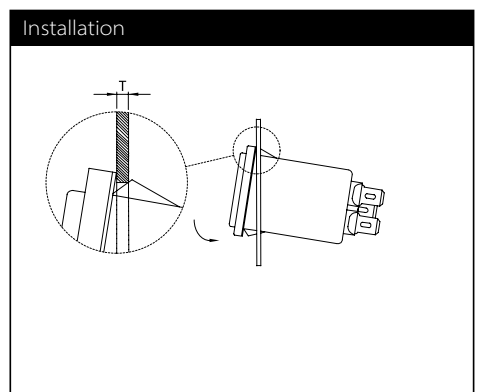
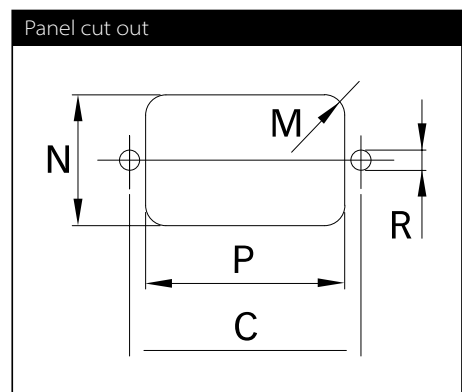
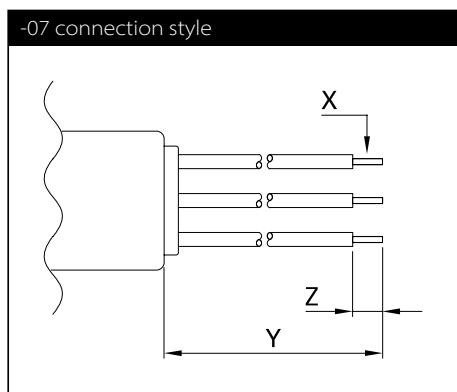
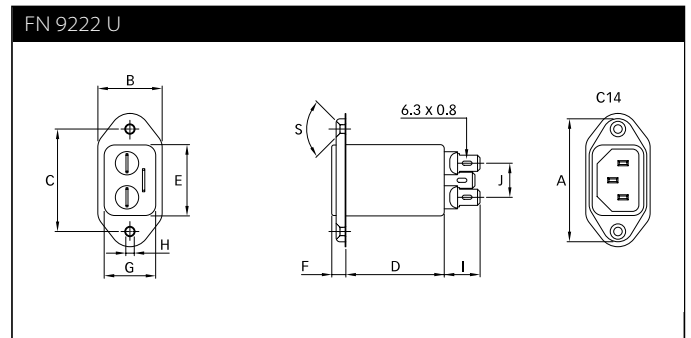
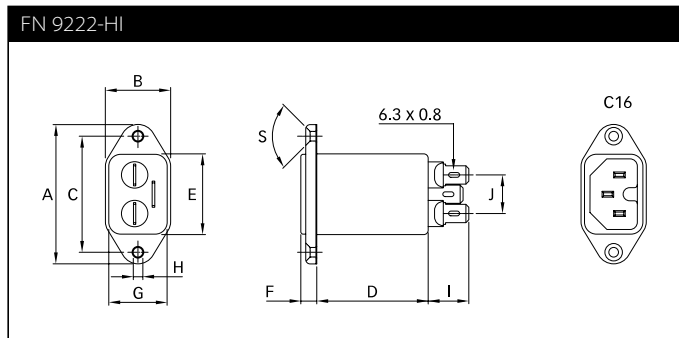
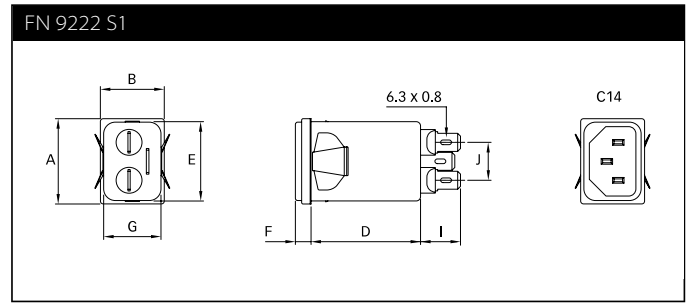
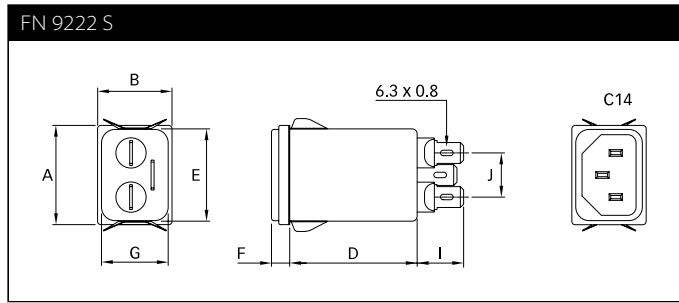
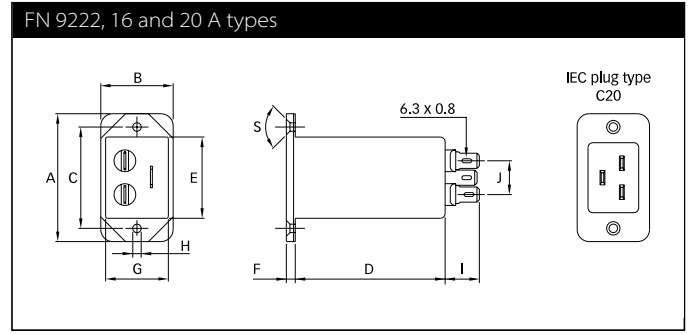
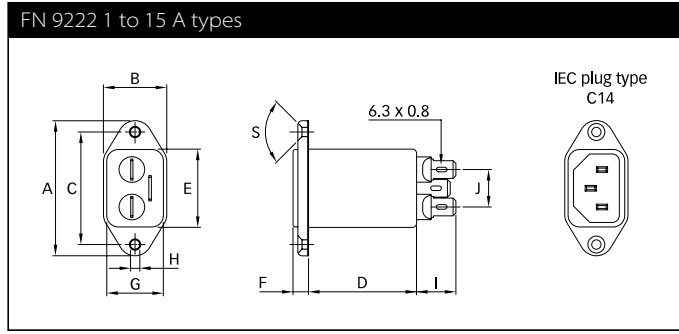
12 and 15 A types



16 and 20 A types



Mechanical data



Dimensions

| | FN 9222 1 to 8 A | 10 to 15 A | 16 and 20 A | FN 9222 U | FN 9222 UZ | FN 9222 S 1 to 8 A | 10 to 15 A | FN 9222 S1 1 to 8 A | 10 to 15 A | FN 9222-HI 12 and 15 A |
|-----------|-----------------------------------|-------------------|--------------------|------------------|-------------------|-------------------------------------|-------------------|--------------------------------------|-------------------|---|
| 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 |

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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