

# 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



### Approvals & Compliances



(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
- FN 9222 B versions comply with the requirements of 1MOP acc. to 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

|  |  |
|--|--|
| <b>Maximum continuous operating voltage</b>      | 250 VAC, 50/60 Hz  |
| <b>Operating frequency</b>                       | DC to 400 Hz   |
| <b>Rated currents</b>                            | 1 to 20 A @ 50°C   |
| <b>Approvals by rated current</b>                | 1 to 10 A (ENEC, CQC)<br>16 A (ENEC, CQC) for 16 and 20 A types<br>1 to 20 A (UL, CSA)   |
| <b>High potential test voltage</b>               | P → PE 2000 VAC for 2 sec (standard types)<br>P → N 250 VAC for 2 sec (all Z types)<br>P → N 1000 VAC for 2 sec (1 to 10 A types, not Z types)<br>P → PE 2500 VAC for 2 sec (B types)<br>P → N 1100 VDC for 2 sec (16 and 20 A types, not Z types) |
| <b>Protection category</b>                       | IP 40 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 (X to XX A, not Z types)  |
| <b>Flammability corresponding to</b>             | UL 94 V-2 or better  |
| <b>Surge pulse protection (Z type)</b>           | Helps compliance to IEC61000-4-5 (Differential Mode only)  |
| <b>MTBF @ 40°C/230 V (Mil-HB-217F)</b>           | ≤15 A: 3,040,000 hours<br>≥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 | Leakage current*                     | Inductance<br>L | Capacitance |      | Resistance<br>R | Output connections  |   | Weight |
|------------------|---------------|--------------------------------------|-----------------|-------------|------|-----------------|---|---|--------|
|                  | @ 50°C (25°C) | @ 250 VAC/50 Hz<br>(@ 120 VAC/60 Hz) |                 | Cx          | Cy   |                 |   |   |        |
|                  | [A]           | [mA]                                 | [mH]            | [μF]        | [nF] | [kΩ]            |  |  | [g]    |
| FN9222x-1-..     | 1 (1.2)       | 0.31 (0.18)                          | 12              | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-3-..     | 3 (3.5)       | 0.31 (0.18)                          | 2.5             | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-6-..     | 6 (7.2)       | 0.31 (0.18)                          | 0.78            | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-8-..     | 8 (10.6)      | 0.31 (0.18)                          | 0.5             | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-10-..    | 10 (11.6)     | 0.31 (0.18)                          | 0.225           | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-12-..    | 12 (12)       | 0.31 (0.18)                          | 0.11            | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-15-..    | 15 (15)       | 0.31 (0.18)                          | 0.075           | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-12-..HI  | 12 (12)       | 0.31 (0.18)                          | 0.11            | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222x-15-..HI  | 15 (15)       | 0.31 (0.18)                          | 0.075           | 0.1         | 2.2  |                 | -06   | -07   | 40     |
| FN9222xR-1-..    | 1 (1.2)       | 0.31 (0.18)                          | 12              | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-3-..    | 3 (3.5)       | 0.31 (0.18)                          | 2.5             | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-6-..    | 6 (7.2)       | 0.31 (0.18)                          | 0.78            | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-8-..    | 8 (10.6)      | 0.31 (0.18)                          | 0.5             | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-10-..   | 10 (11.6)     | 0.31 (0.18)                          | 0.225           | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-12-..   | 12 (12)       | 0.31 (0.18)                          | 0.11            | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-15-..   | 15 (15)       | 0.31 (0.18)                          | 0.075           | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222R-16-06    | 16 (18.5)     | 0.31 (0.18)                          | 0.54            | 0.33        | 2.2  | 1000            | -06   |   | 100    |
| FN9222R-20-06    | 20 (23)       | 0.31 (0.18)                          | 0.4             | 0.33        | 2.2  | 1000            | -06   |   | 100    |
| FN9222xR-12-..HI | 12 (12)       | 0.31 (0.18)                          | 0.11            | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xR-15-..HI | 15 (15)       | 0.31 (0.18)                          | 0.075           | 0.1         | 2.2  | 1000            | -06   | -07   | 40     |
| FN9222xB-1-..    | 1 (1.2)       | 0.00                                 | 12              | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-3-..    | 3 (3.5)       | 0.00                                 | 2.5             | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-6-..    | 6 (7.2)       | 0.00                                 | 0.78            | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-8-..    | 8 (10.6)      | 0.00                                 | 0.5             | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-10-..   | 10 (11.6)     | 0.00                                 | 0.225           | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-12-..   | 12 (12)       | 0.00                                 | 0.11            | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-15-..   | 15 (15)       | 0.00                                 | 0.075           | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222RB-16-06   | 16 (18.5)     | 0.00                                 | 0.54            | 0.33        |      | 1000            | -06   |   | 100    |
| FN9222RB-20-06   | 20 (23)       | 0.00                                 | 0.4             | 0.33        |      | 1000            | -06   |   | 100    |
| FN9222xB-12-..HI | 12 (12)       | 0.00                                 | 0.11            | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222xB-15-..HI | 15 (15)       | 0.00                                 | 0.075           | 0.1         |      | 1000            | -06   | -07   | 40     |
| FN9222UZ-1-06    | 1 (1.2)       | 0.31 (0.18)                          | 12              | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-3-06    | 3 (3.5)       | 0.31 (0.18)                          | 2.5             | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-6-06    | 6 (7.2)       | 0.31 (0.18)                          | 0.78            | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-8-06    | 8 (10.6)      | 0.31 (0.18)                          | 0.5             | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-10-06   | 10 (11.6)     | 0.31 (0.18)                          | 0.225           | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-12-06   | 12 (12)       | 0.31 (0.18)                          | 0.11            | 0.1         | 2.2  |                 | -06   |   | 43     |
| FN9222UZ-15-06   | 15 (15)       | 0.31 (0.18)                          | 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

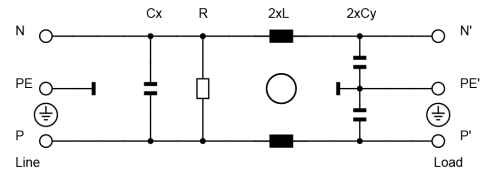
 U: Housing with wider mounting flanges

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

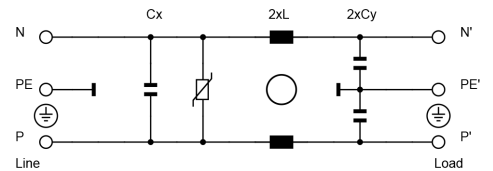
 S1: Snap-in version, snapper on horizontal side (1 to 15A types only)

Typical electrical schematic

Standard, R and B types



Z types



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

Distributor inventory

Check stock levels at global distributors at <https://products.schaffner.com/stock>

(Also available via the QR code)



Stock level per types 1 - 15 A

Standard housing types

Housing with wider mounting flanges (U)

Snap-in housing types (S&S1)

Medical versions (B)

Bleed resistor types (R)

Surge protection types (UZ)

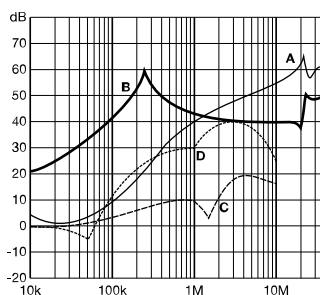
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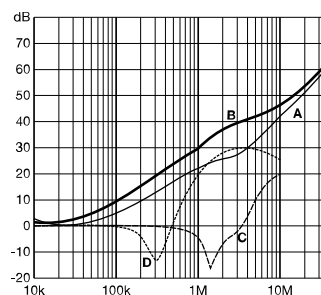
Typical filter attenuation

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

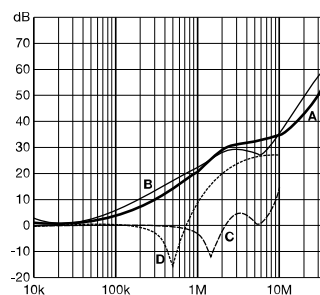
1 and 3 A types



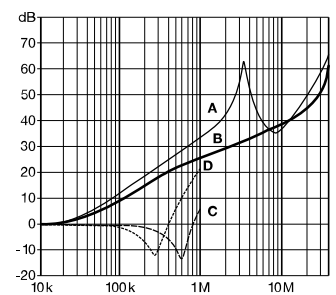
6 to 10 A types



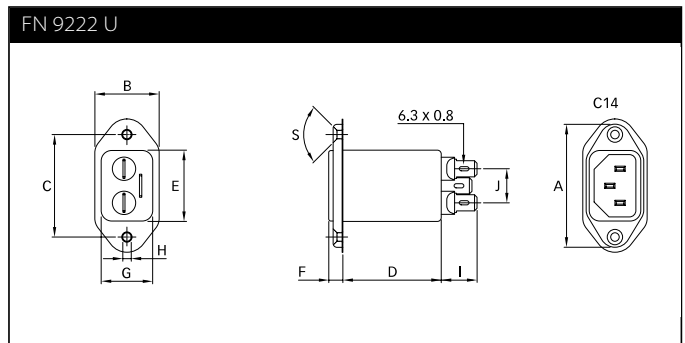
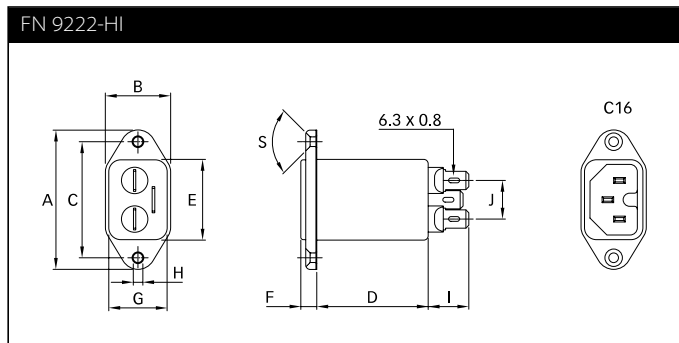
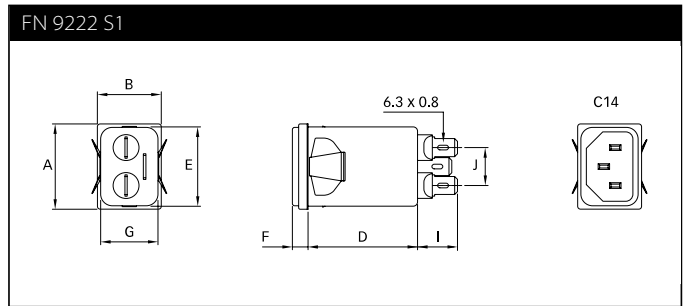
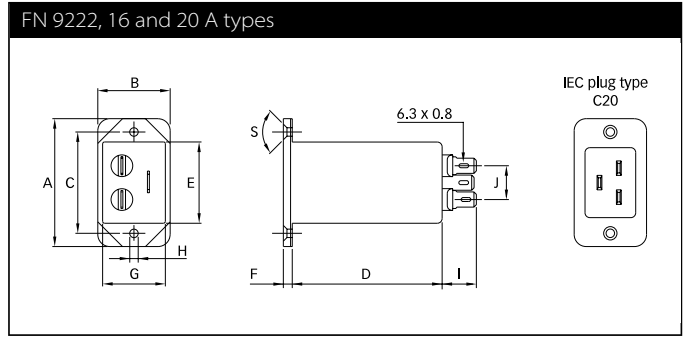
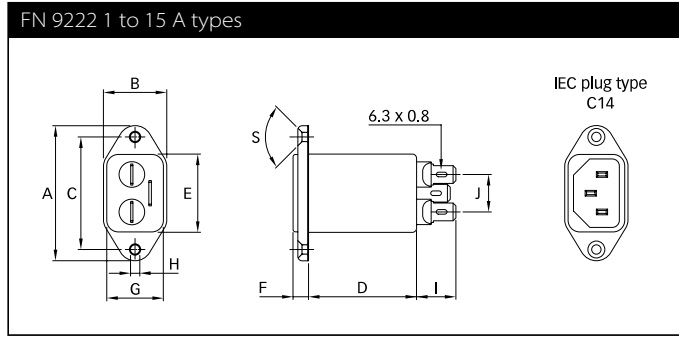
12 and 15 A types



16 and 20 A types



**Mechanical data**



## Dimensions

|            | FN 9222  |            |             | FN 9222 U | FN 9222 UZ | FN 9222 S |            | FN 9222 S1 |            | FN 9222-HI  | Tol.    |
|------------|----------|------------|-------------|-----------|------------|-----------|------------|------------|------------|-------------|---------|
|            | 1 to 8 A | 10 to 15 A | 16 and 20 A |           |            | 1 to 8 A  | 10 to 15 A | 1 to 8 A   | 10 to 15 A | 12 and 15 A |         |
| <b>A</b>   | 48       | 48         | 53          | 51.85     | 51.85      | 29.9      | 29.9       | 29.9       | 29.9       | 48          |         |
| <b>B</b>   | 22.4     | 22.4       | 30          | 25        | 25         | 22.4      | 22.4       | 22.4       | 22.4       | 22.4        |         |
| <b>C</b>   | 40       | 40         | 42          | 40        | 40         |           |            |            |            | 40          | ±0.2    |
| <b>D</b>   | 38.25    | 38.25      | 62          | 38.25     | 47.1       | 38.25     | 38.25      | 38.25      | 38.25      | 38.25       |         |
| <b>E</b>   | 27.8     | 27.8       | 34.5        | 27.7      | 27.7       | 27.8      | 27.8       | 27.8       | 27.8       | 27.8        | +0.6/-0 |
| <b>F</b>   | 5.7      | 5.7        | 3.8         | 5.7       | 5.7        | 5.7       | 5.7        | 5.7        | 5.7        | 5.7         |         |
| <b>G</b>   | 20.1     | 20.1       | 26.5        | 20.1      | 20.1       | 20.1      | 20.1       | 20.1       | 20.1       | 20.1        | +0.6/-0 |
| <b>H</b>   | Ø3.3     | Ø3.3       | Ø3.5        | Ø3.3      | Ø3.3       |           |            |            |            | Ø3.3        |         |
| <b>I</b>   | 14       | 14         | 14          | 14        | 14         | 14        | 14         | 14         | 14         | 14          |         |
| <b>J</b>   | 13.3     | 13.3       | 13.3        | 13.3      | 13.3       | 13.3      | 13.3       | 13.3       | 13.3       | 13.3        |         |
| <b>M</b>   | R 3      | R ≤3       | R ≤1.5      | R ≤3      | R ≤3       | R ≤1.5    | R ≤1.5     | R ≤1.5     | R ≤1.5     | R ≤3        |         |
| <b>N</b>   | 21.5     | 21.5       | 27          | 21.5      | 21.5       | 20.8      | 20.8       | 21.9       | 21.9       | 21.5        |         |
| <b>P</b>   | 28.5     | 28.5       | 34.7        | 28.5      | 28.5       | 29.4      | 29.4       | 28.5       | 28.5       | 28.5        |         |
| <b>R*</b>  | M3       | M3         | M3          | M3        | M3         |           |            |            |            | M3          |         |
| <b>S</b>   | 90°      | 90°        | 90°         | 90°       | 90°        |           |            |            |            | 90°         |         |
| <b>T**</b> |          |            |             |           |            | 0.7-1.5   | 0.7-1.5    | 0.7-1.5    | 0.7-1.5    |             |         |
| <b>T**</b> |          |            |             |           |            | 1.5-2.2   | 1.5-2.2    | 1.5-2.2    | 1.5-2.2    |             |         |
| <b>X</b>   | AWG 18   | AWG 16     |             |           |            | AWG 18    | AWG 16     | AWG 18     | AWG 16     | AWG 16      |         |
| <b>Y</b>   | 160      | 160        |             |           |            | 160       | 160        | 160        | 160        | 160         |         |
| <b>Z</b>   | 6        | 6          |             |           |            | 6         | 6          | 6          | 6          | 6           |         |

\* Recommended torque for M3 (90° countersunk flat head) is 0.5 Nm

\*\* 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.

## Accessories

### Power Cord with angled Locking System C13



- | Locking system for standardized IEC C14 inlet filter
- | No accidental disconnection
- | Rated current up to 15 A
- | Fits any Schaffner IEC C14 inlet filter
- | Retrofit for any IEC C14 inlet
- | Various power line plugs for international usage

[Datasheet PDF >](#)

### IL 13P IEC C13 Rewireable Angled Connectors with Locking System



- | Locking system for standardized IEC C14 inlet filter
- | No accidental disconnection
- | Rated current up to 15 A
- | Fits any Schaffner IEC C14 inlet filter
- | Retrofit for any IEC C14 inlet
- | Various power line plugs for international usage

[Datasheet PDF >](#)

### IL 13P IEC C13 Rewireable Connectors with Locking System



- | Guards against accidental disconnection
- | Requires no other equipment or special inlets to secure it
- | Rewireable - offering total flexibility when assembling cables
- | Fits any Schaffner IEC C14 inlet Filter
- | Can be retrofitted
- | Various power line plugs for international usage
- | LSZH - Low smoke zero halogen

[Datasheet PDF >](#)



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