

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 & Compliances



(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 |

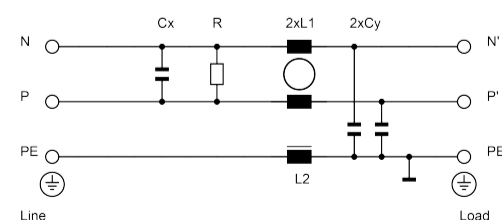
Features and Benefits

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

Typical electrical schematic



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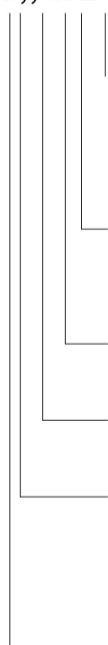
Filter Selection Table





| Filter | Rated current @ 50°C (5 °C) [A] | Leakage current* @ 250 VAC/50 Hz (@ 120 VAC/60 Hz) [mA] | Inductance | | Capacitance | | Resistance R [kΩ] | Output connections  | Weight [g] |
|-------------------|---|--|------------|------------|-------------|------------|-----------------------------|---|-------------------|
| | | | L1 [mH] | L2 [mH] | Cx [μF] | Cy [nF] | | | |
| FN9222Ex-1-06 | 1 (1.2) | 0.31 (0.18) | 12 | 0.4 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-3-06 | 3 (3.5) | 0.31 (0.18) | 2.5 | 0.4 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-6-06 | 6 (7.2) | 0.31 (0.18) | 0.78 | 0.4 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-8-06 | 8 (10.6) | 0.31 (0.18) | 0.5 | 0.4 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-10-06 | 10 (11.6) | 0.31 (0.18) | 0.225 | 0.1 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-12-06 | 12 (12) | 0.31 (0.18) | 0.11 | 0.1 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-15-06 | 15 (15) | 0.31 (0.18) | 0.075 | 0.1 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-12-06HI | 12 (12) | 0.31 (0.18) | 0.11 | 0.1 | 0.1 | 2.2 | | -06 | 46 |
| FN9222Ex-15-06HI | 15 (15) | 0.31 (0.18) | 0.075 | 0.1 | 0.1 | 2.2 | | -06 | 46 |
| FN9222ExR-1-06 | 1 (1.2) | 0.31 (0.18) | 12 | 0.4 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-3-06 | 3 (3.5) | 0.31 (0.18) | 2.5 | 0.4 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-6-06 | 6 (7.2) | 0.31 (0.18) | 0.78 | 0.4 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-8-06 | 8 (10.6) | 0.31 (0.18) | 0.5 | 0.4 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-10-06 | 10 (11.6) | 0.31 (0.18) | 0.225 | 0.1 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-12-06 | 12 (12) | 0.31 (0.18) | 0.11 | 0.1 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-15-06 | 15 (15) | 0.31 (0.18) | 0.075 | 0.1 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-12-06HI | 12 (12) | 0.31 (0.18) | 0.11 | 0.1 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExR-15-06HI | 15 (15) | 0.31 (0.18) | 0.075 | 0.1 | 0.1 | 2.2 | 1000 | -06 | 46 |
| FN9222ExB-1-06 | 1 (1.2) | 0.00 | 12 | 0.4 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-3-06 | 3 (3.5) | 0.00 | 2.5 | 0.4 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-6-06 | 6 (7.2) | 0.00 | 0.78 | 0.4 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-8-06 | 8 (10.6) | 0.00 | 0.5 | 0.4 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-10-06 | 10 (11.6) | 0.00 | 0.225 | 0.1 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-12-06 | 12 (12) | 0.00 | 0.11 | 0.1 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-15-06 | 15 (15) | 0.00 | 0.075 | 0.1 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-12-06HI | 12 (12) | 0.00 | 0.11 | 0.1 | 0.1 | | 1000 | -06 | 46 |
| FN9222ExB-15-06HI | 15 (15) | 0.00 | 0.075 | 0.1 | 0.1 | | 1000 | -06 | 46 |

* Leakage current under normal operating conditions (acc. to IEC60939-3). 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

Distributor Inventory

Check stock levels at global distributors via the QR code



| Stock level per types 1 - 15 A | Link |
|---|---|
| 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) |  |

**For example: FN 9222 E-15-06, FN 9222 ES1B-10-06-20, FN 9222 EUB-8-06-20

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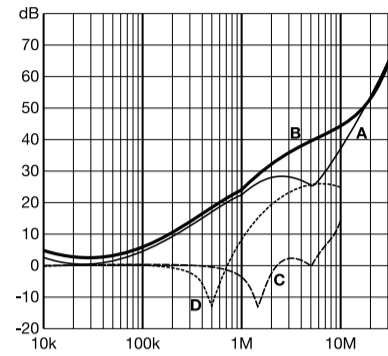
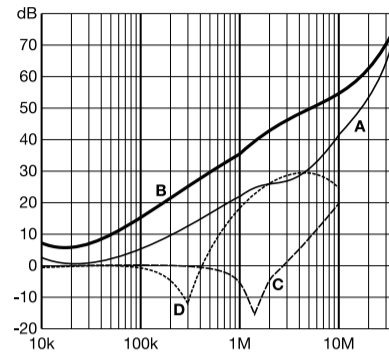
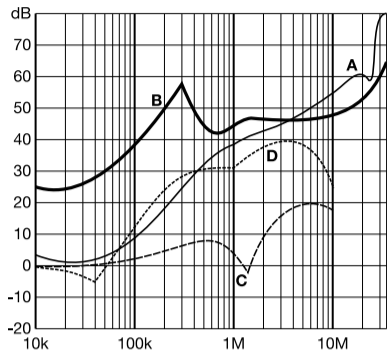
Typical Filter Attenuation

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

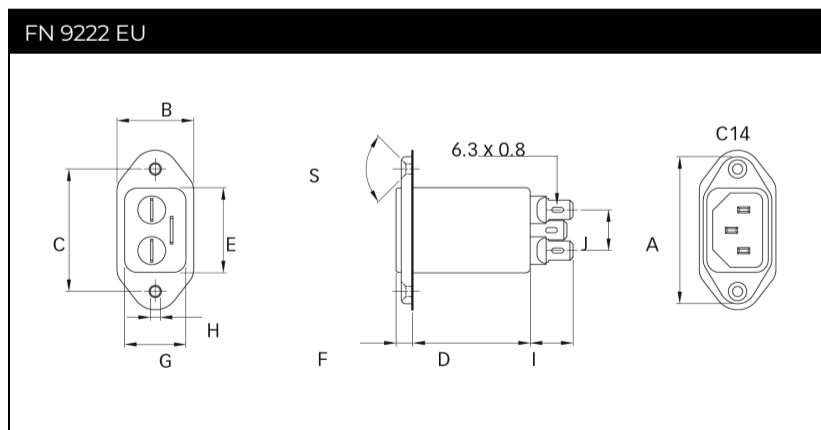
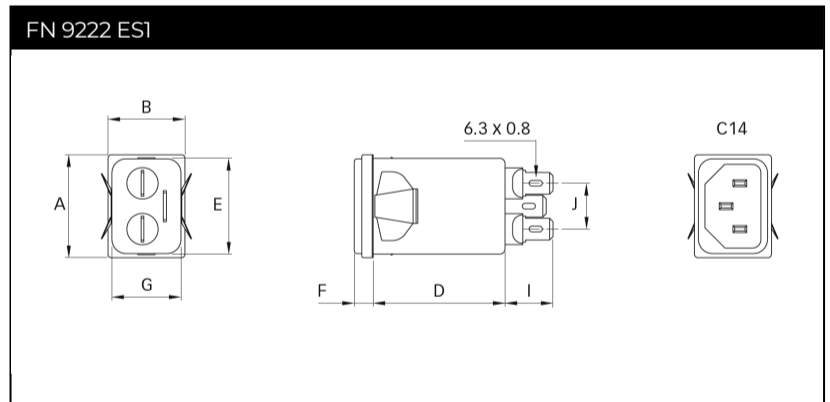
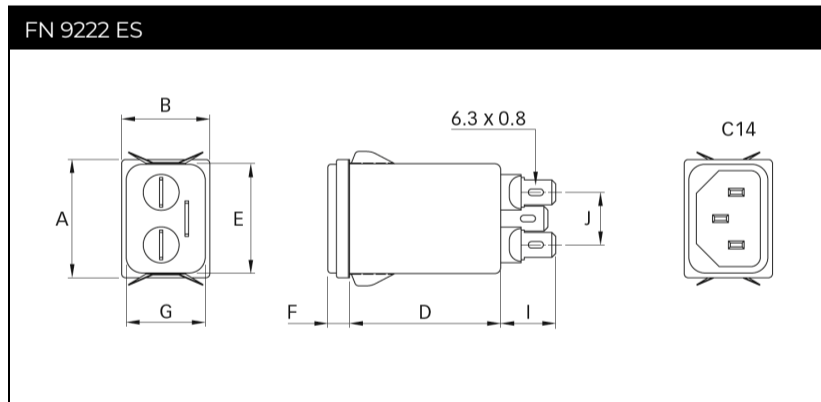
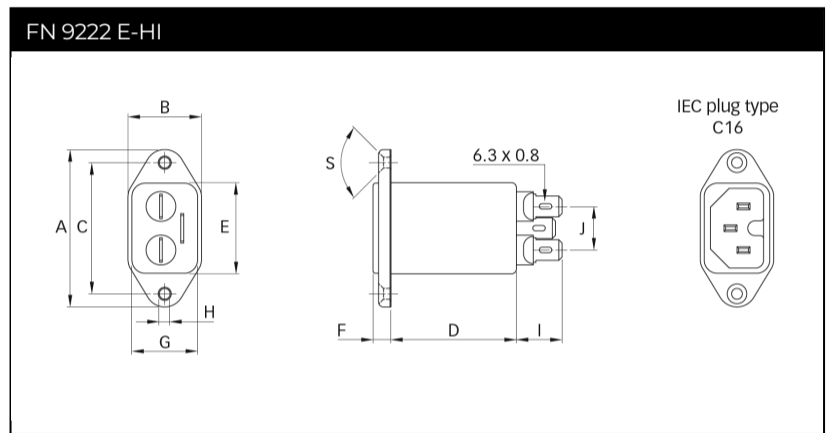
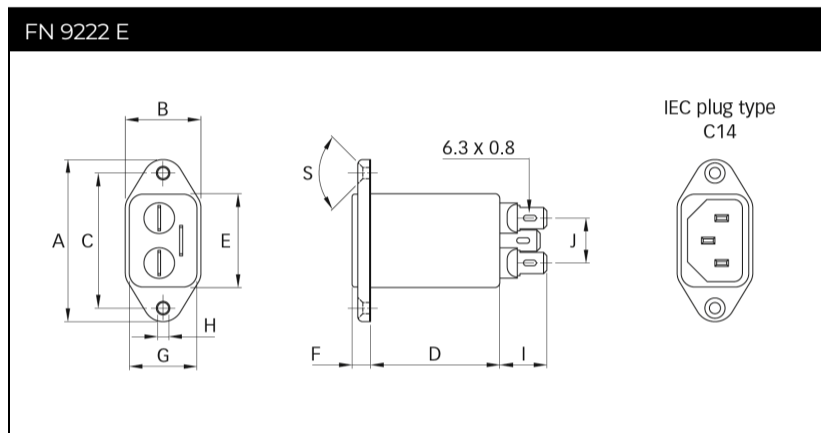
1 and 3 A types

6 to 10 A types

12 and 15 A types

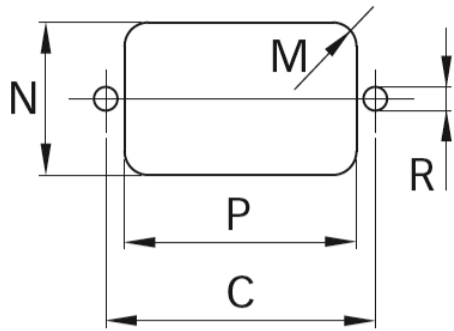


Mechanical Data

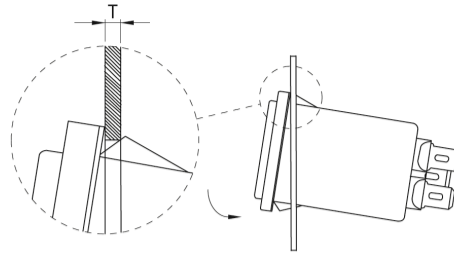


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Panel cut out



Installation



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Dimensions

| | FN 9222 E | FN 9222 EU | FN 9222 ES | FN 9222 ES1 | FN 9222 E-HI | Tol. |
|------------|-----------|------------|------------|-------------|--------------|---------|
| A | 48 | 48 | 29.9 | 29.9 | 48 | |
| B | 22.4 | 25 | 22.4 | 22.4 | 22.4 | |
| C | 40 | 40 | | | 40 | ±0.2 |
| D | 47.1 | 47.1 | 47.1 | 47.1 | 47.1 | |
| E | 27.8 | 27.7 | 27.8 | 27.8 | 27.8 | +0.6/-0 |
| F | 5.7 | 5.7 | 5.7 | 5.7 | 5.7 | |
| G | 20.1 | 20.1 | 20.1 | 20.1 | 20.1 | +0.6/-0 |
| 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 | | |

* 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 to find more details on filter connectors.

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Accessories

Power Cord with angled Locking System C13



- Protects appliances that are vulnerable to vibration
- Connector cannot be accidentally pulled or vibrated out of the inlet
- Space availability/constraints
- Different angles for ease of access
- Space saving
- Release locking mechanism
- Prevents accidental disconnection

[Technical Data Sheet >](#)

IL 13P IEC C13 Rewireable Angled Connectors with Locking System

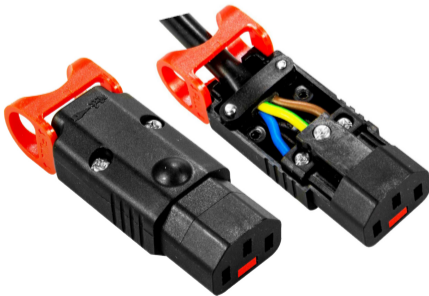


- Protects appliances that are vulnerable to vibration
- Connector cannot be accidentally pulled or vibrated out of the inlet
- Space availability/constraints
- Different angles for ease of access
- Space saving
- Release locking mechanism
- Prevents accidental disconnection

[Technical Data Sheet >](#)

IL 13P IEC C13 Rewireable Connectors with Locking System

IEC
LOCK+
 REWIREABLE



The locking system has a tensile force of typical 300N. It is recommended to use it with flange mount filters. For details refer to our Application Note "Using IEC Lock Power Cords with IEC Inlets and Filters".

Schaffner power connector with IEC lock guard against accidental disconnection of all electrical appliances with an IEC inlet. No exchange or modification of the IEC inlet or IEC inlet filter system is needed. Easy retrofit for all electronic equipments and devices

[Technical Data Sheet >](#)