Versatile Medical Class II EMC/EMI Filter

- Medical filter suitable for compliance with Protection Class II (ME) according IEC 60601-1
- Fulfills the requirement for two MOPP (means of patient protection), compliant with IEC/EN 60601-1
- No leakage current to earth
- Rated currents up to 15 A
- Excellent performance/size ratio
- Front mount, rear mount and snap-in versions (BL, MB and S1B type)
- Plastic enclosure for higher dielectric strength insulation
- Fast-on terminals or wire leads
- V-lock compatible

### Performance indicators

**Attenuation performance**

<table>
<thead>
<tr>
<th>Rated current [A]</th>
<th>standard</th>
<th>high</th>
<th>very high</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Technical specifications**

- **Maximum continuous operating voltage**: 250 VAC, 50/60 Hz
- **Rated currents**: 1 to 15 A @ 40°C max.
- **Operating frequency**: DC to 400 Hz
- **High potential test voltage**:
  - P -> N: 760 VAC for 2 s
  - P/N -> Ext. insulation: 4 kVAC for 60 s acc. IEC 60601-1
  - -40°C to +100°C (40/100/21)
- **Temperature range (operation and storage)**:
  - up to 15A: UL 60939-3, CSA Std C22.1 No. 8-13
  - up to 10A: IEC/EN 60939-1, GB/T15287, GB/T15288
- **Design corresponding to**:
  - P 40 according to IEC 60529 (front side, with inserted plug)
- **Protection category**: IP 40 according to IEC 60529
- **Overvoltage category**: 2 acc. IEC 60664-1
- **Pollution degree**: 2 acc. IEC 60664-1
- **Vibration and shock**:
  - 3M4 acc. IEC 60721-3-3
  - > 1,000,000 hours
- **MTBF @ Rated amb. Temp./Voltage (Mil-HB-217F)**: > 1,000,000 hours
- **Flammability corresponding to**:
  - Plastic Material: UL 94 V-0
  - Laces for -07 version: UL 94 VW-1

**Approvals & Compliances**

- The FN9274 IEC inlet filter is suitable for compliance with Class II ME equipment. It incorporates an EMC filter into a C18 IEC inlet that offers excellent filter attenuation in a compact housing.
- The filter is available with two connection variants on the load side. The cable version is touch-safe by default. The pins of the fast-on-version are recessed in the plastic housing. In combination with insulated crimp connectors Class II compliance can be achieved for Fast-on version.
- The requirements for Two MOPP in IEC 60601-1:2005 + A1 regarding Leakage Currents, Insulation and Air Clearance and Creepage Distances and Ball Pressure test are fulfilled.

**Features and benefits**

- Suitable for class II Medical Equipment (ME)
- Fulfills the requirements for Two MOPP in IEC 60601-1 - Medical electrical equipment
- Fulfills the requirements in IEC/EN 62368-1 - Audio/video, information and communication technology equipment
- Fulfills the requirements in IEC/EN 60950-1 - Information technology equipment
- Fulfills the requirements in IEC/EN 60335-1 - Household and similar electrical appliances
- Fulfills the requirements for Reinforced Insulation in IEC 61010-1 - Safety requirements
- All versions certified according UL/IEC 60939-3, C22.2 No. 8. CQC/CCC GB/T15287 and GB/T15288

**Typical applications**

- General medical devices (MDD)
- In-vitro diagnostic medical devices (IVDD)
- Test and measurement equipment
- Portable electrical and electronic equipment
- Single-phase power supplies, switch-mode power supplies (SMPS)
- Audio / video / communication equipment (IEC/UL 62368-1)

**Electrical schematic**

![Electrical schematic](image_url)
### Filter selection table - classic

<table>
<thead>
<tr>
<th>Filter</th>
<th>Rated current at 40°C</th>
<th>Leakage current @ 40°C</th>
<th>Inductance L1</th>
<th>Capacitance Cx</th>
<th>Resistor R</th>
<th>Input connections</th>
<th>Output connections</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>FN9274XXB-1-ZZ</td>
<td>1 A</td>
<td>0.0 mA</td>
<td>41.1 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
<tr>
<td>FN9274XXB-2-ZZ</td>
<td>2 A</td>
<td>0.0 mA</td>
<td>20.1 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
<tr>
<td>FN9274XXB-4-ZZ</td>
<td>4 A</td>
<td>0.0 mA</td>
<td>7.2 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
<tr>
<td>FN9274XXB-6-ZZ</td>
<td>6 A</td>
<td>0.0 mA</td>
<td>3.2 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
<tr>
<td>FN9274XXB-10-ZZ</td>
<td>10 A</td>
<td>0.0 mA</td>
<td>1.3 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
<tr>
<td>FN9274XXB-15-ZZ</td>
<td>15 A</td>
<td>0.0 mA</td>
<td>0.4 mH</td>
<td>0.22 µF</td>
<td>1 MΩ</td>
<td>C18</td>
<td>-05 -07</td>
<td>&lt;40</td>
</tr>
</tbody>
</table>

Test conditions: Temperature: 25°C±2°C, measuring frequency for inductance: 1 kHz, 50 mV
Tolerances: Inductance: ±50%, -30%; capacitance: ±20%; resistance: ±10%. For mechanical tolerances, please refer to the mechanical data section

* Standard length is 160 mm

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### Product selector

**FN 9274 xx B -yy-zz**

- **05:** Fast-on 6.3 x 0.8 mm
- **07:** Wire leads
- **1 to 15:** Rated current
- **B:** Standard Version for Medical Applications
- **Blank:** Standard housing with mounting flanges (front mount)
- **M:** Standard housing with mounting flanges (rear mount)
- **S1:** Snap-in version, snapper on vertical side

For example **FN9274MB-15-05**:
- **FN9274 IEC inlet with**
- **-rear mount flanges (M),**
- **-15A rated current (15) and**
- **-fast-on terminals (05).**

**Design-in recommendation:**
- **EMC and functional test with FN9274B-XX-05 (safety stock all currents - front mount, fast-on types)**
- **Mechanical integration with FN9274XXB-15-ZZ (safety stock for all variants - 15A-types)**

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### Typical filter attenuation

Per CISPR 17 / symmetrical 50 Ω/50 Ω - Differential Mode (DM) / asymmetrical 50 Ω/50 Ω - Common Mode (CM)

- **1 A**
- **2 A**
- **4 A**
- **6 A**
- **10 A**
- **15 A**
Mechanical data - front mount

FN9274B-XX-05

* Recommended torque for M3 = 0.5 Nm

FN9274B-XX-07

* Recommended torque for M3 = 0.5 Nm

For dimensions [mm] without tolerances: ISO 2768-m / EN22768-m applies
Mechanical data - rear mount

FN9274MB-XX-05

* Recommended torque for M3 = 0.5 Nm

FN9274MB-XX-07

* Recommended torque for M3 = 0.5 Nm

For dimensions [mm] without tolerances: ISO 2768-m / EN22768-m applies
Mechanical data - snap-in

FN9274S1B-XX-05

For dimensions [mm] without tolerances: ISO 2768-m / EN22768-m applies

FN9274S1B-XX-07

For dimensions [mm] without tolerances: ISO 2768-m / EN22768-m applies
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