General Purpose AC/DC EMI Filter

- Rated currents from 1 to 60 A
- High differential-mode attenuation
- Optional medical version (B type)
- Optional safety version (A type)

**Technical specifications**

- **Rated voltage**: 250 VAC, 50/60 Hz; 250 VDC
- **Operating frequency**: DC to 400 Hz
- **Rated currents**: 1 to 60 A @ 40°C max.
- **High potential test voltage**: P –> PE 2000 VAC for 2 sec, P –> PE 2500 VAC for 2 sec (B types), P –> N 760 VAC for 2 sec (1 to 20 A types), P –> N 1100 VDC for 2 sec (30 and 60 A types)
- **Temperature range (operation and storage)**: -25°C to +100°C (25/100/21)**
- **Certified to**: UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939 (applies to AC and DC applications)
- **Flammability corresponding to**: UL 94 V-2 or better
- **Design corresponding to**: UL 1283, CSA 22.2 No. 8 1986, IEC/EN 60939
- **Overvoltage category**: II acc. IEC 60664-1
- **Pollution degree**: 2 acc. IEC 60664-1
- **Altitude**: 2000m (above derating applies)**
- **MTBF @ 40°C/230 V (MIL-HB-217F)**: 1,250,000 hours, 1,750,000 hours (B types)

*maximum RMS operating voltage at rated frequency or the maximum DC operating voltage

** for dedicated requests exceeding this specification (e.g. -40 °C or higher altitude) please contact your local Schaffner Sales office

**Features and benefits**

- FN 2020 filters are designed for easy and fast chassis mounting
- FN 2020 filters are also available as B versions without Y-capacitors for medical applications as well as A version with low capacitance for safety critical applications with necessity for low leakage currents
- All filters provide a general purpose conducted attenuation performance, based on chokes with high saturation resistance and excellent thermal behavior
- FN 2020 filters can be used to cover a broad range of usage and they offer a good size/amperage ratio
- FN 2020 filters are also available as two-stage filters (FN 2060, FN 2070 series) for more noisy environment
- Various terminal options allow you to select the desired connection style

**Approved standards**

- UL, CSA, CE, RoHS

**Typical applications**

- Electrical and electronic equipment
- Consumer goods
- Household equipment
- Medical equipment
- Office automation equipment
- Datacom equipment

**Typical electrical schematic**

[Diagram of FN 2020 filter connection]
## Filter selection table

<table>
<thead>
<tr>
<th>Filter*</th>
<th>Rated current @ 4°C (25°C)</th>
<th>Leakage current** @ 250 VAC/50 Hz (@ 120 VAC/60 Hz)</th>
<th>Inductance*** L</th>
<th>Capacitance*** Cx</th>
<th>Capacitance*** Cy</th>
<th>Resistance*** R</th>
<th>Input/Output connections</th>
<th>Weight [g]</th>
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<tbody>
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<td>1 (1.15)</td>
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<td>FN 2020-30-08</td>
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<td>-08</td>
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<tr>
<td>FN 2020-60-24</td>
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* To compile a complete part number, please replace the -.. with the required I/O connection style (e.g. FN 2020-30-08, FN 2020B-10-06).  
** Maximum leakage under usual AC operating conditions (acc. IEC60939-3). Note: if the neutral line is interrupted, worst case leakage could reach twice this level.  
*** Tolerances apply: Inductance: -30%/+50%, Capacitance: ±20%, Resistance: ±10%
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 A: Standard type
   A type
   B type

3 A: Standard type
   A type
   B types

6 A: Standard type
   A type
   B types

10 A: Standard type
   A type
   B types

12 A: Standard type
   A type
   B types
### Product selector

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<thead>
<tr>
<th>FN 2020 x -xx-yy</th>
<th>Description</th>
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<tr>
<td>06</td>
<td>Fasten 6.3 x 0.8 mm (padhead/soldering)</td>
</tr>
<tr>
<td>07</td>
<td>Wire leads</td>
</tr>
<tr>
<td>08</td>
<td>Studs (M4 screws)</td>
</tr>
<tr>
<td>24</td>
<td>Studs (M6 screws)</td>
</tr>
<tr>
<td>1 to 60</td>
<td>Rated current</td>
</tr>
<tr>
<td>B</td>
<td>Standard version</td>
</tr>
<tr>
<td>A</td>
<td>Safety version</td>
</tr>
<tr>
<td>B</td>
<td>Medical version</td>
</tr>
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### Mechanical data

#### Connection style -06, 1 to 12 A types

![Connection style -06 diagram](image)

#### Connection style -06, 16 and 20 A types

![Connection style -06 diagram](image)

#### Connection style -07, 1 to 12 A types (same dimensions as style -06)

![Connection style -07 diagram](image)

#### Connection style -07, 16 A types (same dimensions as style -06)

![Connection style -07 diagram](image)

#### Connection style -08, 16 and 20 A types

![Connection style -08 diagram](image)

#### Connection style -08, 30 A types

![Connection style -08 diagram](image)

#### Connection style -24

![Connection style -24 diagram](image)
## Dimensions

<table>
<thead>
<tr>
<th></th>
<th>1 A</th>
<th>3 A</th>
<th>6 A</th>
<th>10 A</th>
<th>12 A</th>
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### Connection style -06

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</table>

All dimensions in mm; 1 inch = 25.4 mm
Tolerances according ISO 2768-m/EN 22768-m

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